

INSIDE

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The

MALLIFICATION

Of New Hampshire

From Staff and Wire Reports

LOLA TYLER, 80, and her son, James, 57, stroll through Nashua's Pheasant Lane Mall almost every evening. Sometimes they buy an item but, for the most part, the Tylers, like many others, come to the mall just to visit friends and watch other people.

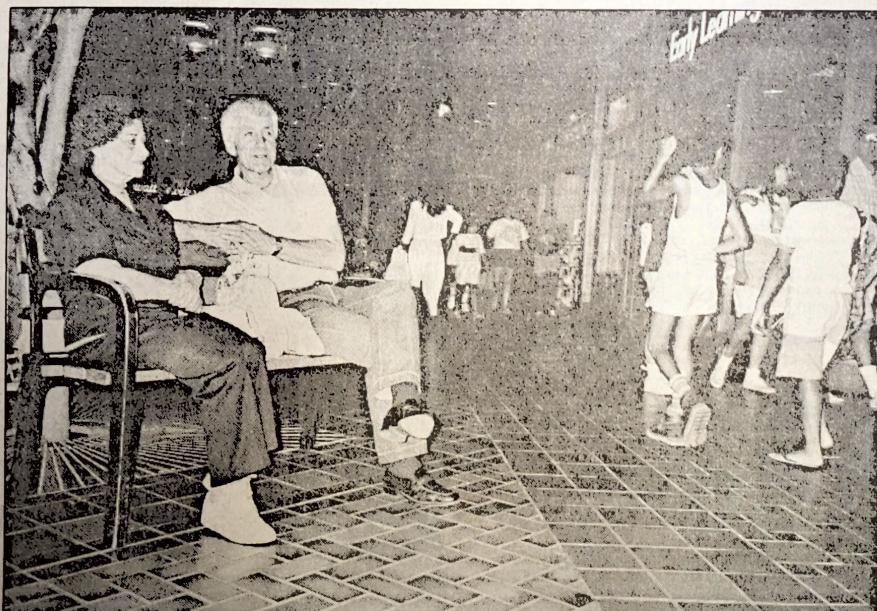
"I meet a lot of new friends here," Lola says. "I'm one of those friendly people who loves people."

The Tylers' mall-oriented outlook reflects what many experts say is a shift in the way Americans live. Malls have replaced traditional downtown Main Streets to become the social centers of automobile-based suburbs.

"We took away the opportunity for people to go to the town dump, where they'd meet with others," says David Scott, director of policy planning and administration for the New Hampshire Office of State Planning. "I think malls are a replacement for some of those village kinds of things that aren't there anymore."

Truman Hartshorn, chairman of the geography department at Georgia State University in Atlanta, headed a federal study of the suburbs. He says malls are the new "suburban downtown."

For many of the 12.6 million Americans who walk in them each



LOLA TYLER and son, James, watch the passing pedestrian traffic in Nashua's Pheasant Lane Mall.

(Photo by Jeanne Morris)

those events to function as a town square."

Because so many people drive to

Canadian mall roughly the size of 11 football fields features an indoor roller coaster and a zoo center, "only we try to make it more comfortable for people to be here. For example, more than 800

otherwise centerless suburban communities, Marsden says. "I see the mall as a natural process for a consumer economy."

Traditional town squares were designed for pedestrians or horse carriages — not cars — and arose at crossroads within communities — places people filtered through on their way home, to work and to shop. Downtowns, for instance, generally built up around a railroad station or harbor.

With the introduction of the car, however, people began moving into the suburbs and further away from centers of work. But jobs followed people, and by 1990 an estimated six of every 10 jobs will be in the suburbs.

The automobile also meant that historic town squares outgrew their usefulness.

"Traffic is prohibitive in traditional town squares," Marsden says. "Most downtowns are a nightmare to get through with a car. The other problem is people are just too spread out. They don't cluster around jobs or whatever."

Another major factor in the shift from old downtowns is the interstate expressway system. Today, there are new crossroads — and, Marsden notes, the malls sit closely.

Scott, of the Office of State Planning, notices that malls form a partnership with the public, attracting public funds for highway

Georgia State University in Atlanta, headed a federal study of the suburbs. He says malls are the new square.

For many of the 120 million Americans who walk in them each month, the attraction to the nation's 30,000 malls is more than merely shopping, according to Michael Marsden, a cultural anthropologist who teaches popular culture at Bowling Green State University in northwest Ohio.

Marsden dubs malls the new town square: "The mall takes on the 19th-century function of a town square. That's what really happens. 'The mall becomes an extension of the town. A good town manager learns very early that what the community wants is events scheduled at the mall. They want the mall and

so forth."

Because so many people drive to the mall just to pass the time, merchants have begun focusing on eye-grabbing window displays.

"I think you'll find retailers have gotten involved with better visual advertising to attract browsers," Sharon Hodson, manager of the Newington Mall, says.

Today's malls are apt to contain post offices, bars, restaurants, law offices, hotels, movie theaters, art galleries and even town offices.

A mall in Cincinnati offers an 18-hole miniature golf course and amusement rides.

Edmonton, Alberta, a

football fields features an indoor roller coaster and a zoo.

At the Northwest Mall in Albany, N.Y., shoppers can even take time out from their excursions to worship in a Franciscan chapel.

"We're like St. Francis," says the Rev. Giles Bello, who runs the Roman Catholic chapel. "He went where the people were. That's why we're here — the people."

Virginia Szymanski, general manager of the Pheasant Lane Mall in Nashua, actively sells the concept of her mall as a regional town square.

"It's the old town square area where people used to gather years ago," Szymanski says of her shopping

(Photo by Jedidiah) comfortable for people to be here.

For example, more than 800 people belong to the mall's morning health walk program. Shortly before 9 a.m. on a typical weekday morning, about 150 strollers can be observed taking health walks around the mall. Afterward, they generally stop in the restaurant aisle for breakfast and friendly conversation.

"The food court here every morning is a regular social session," Szymanski says.

Many observers say the transformation of malls into social centers is a natural consequence of an automobile-centered society. Regional malls fill a need in today's

partnership with the public, attracting public funds for highway improvements or public services.

"Some kind of public assistance often seems to be needed to make these malls run," he says.

In the case of the Mall of New Hampshire, Scott says, as the center became established and attracted more people, it then required funding for better highway access. At the same time, he notes, Manchester's downtown is dying because people can't get to it.

"Often you'll see a symbiosis between the town and the mall," Marsden says.

MALLS, Page 9F

Nearly 1 Million People Left Rural America in '86-'87

By SHARON COHEN
And TAD BARTIMUS
The Associated Press

As unobtrusive as a church bell, as final as a funeral notice, the passing away of so much of rural America began with a going-out-of-business sign.

Perhaps it appeared in a shoe store window, or the florist's shop where every bride of the past 50 years ordered her bouquet. It happened because the railroad died, the hotel closed, jobs dried up, folks moved on.

The vast stretch of America, beyond the nighttime glow of cities, where stars and a few street lights mean rural life, has been shrinking and struggling for decades.

As the nation faces the 1990s, farmers and small-town residents no longer live in the countryside found in a Willa Cather novel or on a Norman Rockwell canvas. Today there are two rural Americas: one is dying, the other surviving, often by its wits.

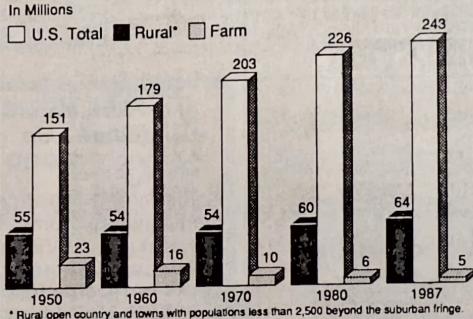
Isolated, one-industry towns and backroads hamlets that once defined "country" are fading into history. At the same time modern little communities with diverse economic foundations and fortuitous locations are going strong.

"The remote rural areas that are falling farther and farther behind have little prospect for attracting industry," said Cynthia Duncan, associate director of the Rural Economic Policy Program of the Aspen Institute, a think tank that does social and economic research. "Rural areas that are closer to cities... are more resilient and are going to recover faster."

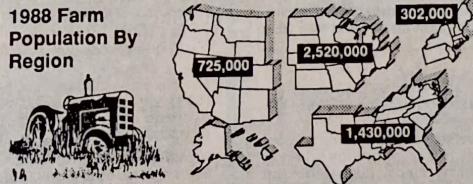
The dying rural America is evident in the country school, its

RURAL CROSSROADS

Farm and Rural Population



1988 Farm Population By Region



Note: Between 1970 and 1980 the definition of farming changed to apply to just those who sell at least \$1,000 in products a year.

Sources: U.S.D.A., Census Bureau and Population Reference Bureau

AP/T. Dean Caple

once-white clapboards peeling gray in the unrelenting wind of the Nebraska prairie, and in the dilapidated homesteads of North Dakota where roof-high lilac bushes grow un tended.

A way of life is disappearing when, in Montana, a homemakers' group cancels its annual Mother's Day tea because so few members remain.

But the other rural America, the historical and emotional pull of rural and small-town life put the heartbeat in the heartland. The idealized myth of a homogeneous rural America, where a family lived off a bountiful land, shopped in a small town free of crime and perpetuated itself in prosperity and harmony through grit, hard work and lofty moral principles goes back to

the day the Pilgrims landed.

Thomas Jefferson articulated the ideal, holding that land ownership must be broad-based, that democracy must be rooted in the individual efforts of small farmers and merchants.

"If they can do it, you can do it all over," said David Guarino of the Texas Department of Agriculture, which helped with a grant.

For almost two centuries, the historical and emotional pull of rural and small-town life put the heartbeat in the heartland. The idealized myth of a homogeneous rural America, where a family lived off a bountiful land, shopped in a small town free of crime and perpetuated itself in prosperity and harmony through grit, hard work and lofty moral principles goes back to

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And yet, except for a brief "rural renaissance" in the 1970s, when 4.5 million people fled the cities to earn livings in the country as coal and farming boomed, much of rural life has been on a long decline.

"In the '80s," said Calvin Beale, chief Agriculture Department demographer, "we simply do not see many of the back-to-the-landers, homesteader or urban refugees who go out to upper Michigan, upper Minnesota, the

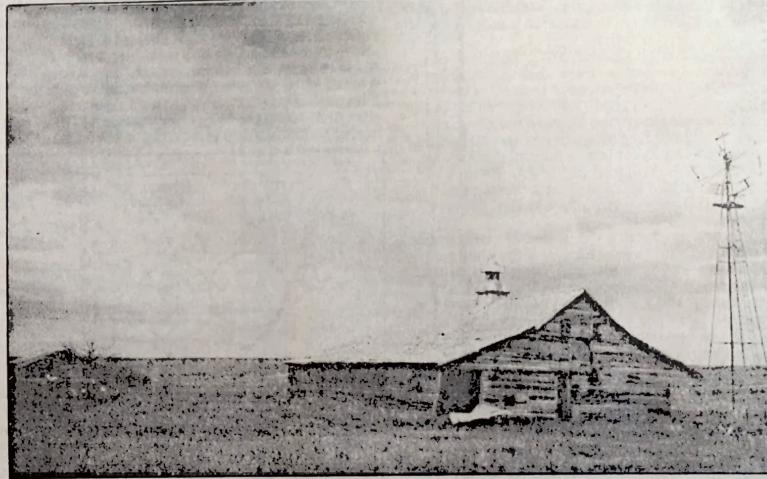
Ozarks, northeastern New England to make their living in a small-town community because they prefer to do it."

The '80s added new crises to old challenges: tumbling land values, farm foreclosures, two droughts, school consolidation, falling commodity and petroleum prices, deregulation and declining services, a brain drain and a loss of jobs caused by mechanization, factory closings and increased use of cheap Third World labor.

The result has been an exodus to urban centers and dire predictions for the future.

"Unless action is taken, virtually every citizen of the coun-

DECLINE, Page 8F



An abandoned Montana farmhouse testifies to rural flight.

(AP)

Outdoors

Woods, Water And Wildlife



BY JOHN HARRIGAN

The Two-Fish Limit: A Sensible Tool For Fishery Management

FOUR YEARS AGO, several far-thinking fishermen got together with biologists and others who hoped to build a quality trout fishery and came up with what for New Hampshire was a novel — and ultimately highly controversial — idea: It was the two-fish limit.

The two-fish limit died a quick death, blown out of the water by greed, knee-jerk reaction, and a "don't bother me with the facts" mentality. It was an idea that broke over the fishing scene like a wave, with no time for proper groundwork. People who have had no chance to think about and talk over an idea before it is proposed tend to be automatically negative.

Thus the two-fish limit turned out to be one of those depressing lessons on the true nature of the fishing scene: like it or not, great numbers of fishermen tend to evaluate their success and enjoyment of the sport on the basis of how many dead fish they lug home. The catch-and-release ethic is talked about, and practiced, by a vocal and highly visible number of fly fishermen, but they are a distinct minority. "Quality fishing" and the long-term good of the resource take a back seat to fishing for meat.

How shallow was the thinking and how knee-jerk was the reaction? Perhaps one single example of the comments we heard will suffice.

Over and over, the people who ultimately ganged up on the two-fish idea and made it such a hot political potato that it was dumped had this to say: "I don't see the sense of traveling all that way to camp and spending all that money for gas and food if I can only catch two fish."

Never mind that nobody ever said they could only catch two fish. They could catch all the fish they wanted, all day long — they could only kill two. But did anybody bother to think about the distinction? Nope.

SUCH A LESSON in the "me" mentality and short-sightedness of large numbers of fishermen can make a cynic out of even the most hopeful conservationist. If people will lip service to the long-term health of the resource, the wise expenditure of sportsmen's license fees, and the quality (vs. the quantity) of fishing but will then turn right around and vote with their dinner plates, why bother to fight? You might as well call

NOTE: Because the astronomical events of August will include both a lunar eclipse Aug. 16 and the Voyager 2 flyby of Neptune Aug. 24, the column Skywatch will appear in two parts this month. Part 2, dealing primarily with the Neptune flyby of the Voyager spacecraft, will appear next Sunday. —Ed.

AUGUST PROMISES TO BE a remarkable month. The Milky Way nears the zenith at sunset, providing a wonderful view of the equator of our galaxy. Saturn, Neptune and Uranus are at their highest at sunset, in the constellation Sagittarius. The moon undergoes a total eclipse Aug. 16, starting near sunset. The Perseid meteor shower peaks Aug. 12. And on Aug. 24, the spacecraft Voyager 2 passes its final planet, Neptune.

Mercury appears in the evening sky this month. Near the beginning of the month, try finding Mercury, Mars and Regulus very near the western horizon about 30 minutes after sunset, about 5 degrees above the horizon. Mercury reaches its greatest elongation — its largest apparent distance from the sun in the sky — on the 29th of the month.

Venus is still visible in the western horizon after sunset. It sets about an hour and a half after the sun.

Saturn, Uranus and Neptune are near the highest point above the horizon at sunset. This is the middle of the best time to observe these planets.

The Milky Way, the vast concentration of stars that represents the equatorial plane of our galaxy, is almost overhead in the early evening. A pair of binoculars will nicely show the rich diversity of this part of the sky.

In the eastern part of the sky, the autumn constellations of Pegasus, the Winged Horse, and Andromeda are rising. Pegasus is identified by its large square of fairly bright stars. Andromeda is noted for the galaxy that bears the same name.

The Andromeda galaxy is the closest spiral galaxy to our own. It lies 2.2 million light years away (a light year is the distance that light travels in space in one year — approximately 6 trillion miles), and is visible the naked eye on reasonably clear nights. Through either binoculars or a small telescope, you will be able to observe the galaxy's bright nucleus, the region at the center of a galaxy where there is a large concentration of matter.

The three exciting events occurring this month are the total lunar eclipse, the Voyager 2 flyby of Neptune, and the Perseid meteor shower.

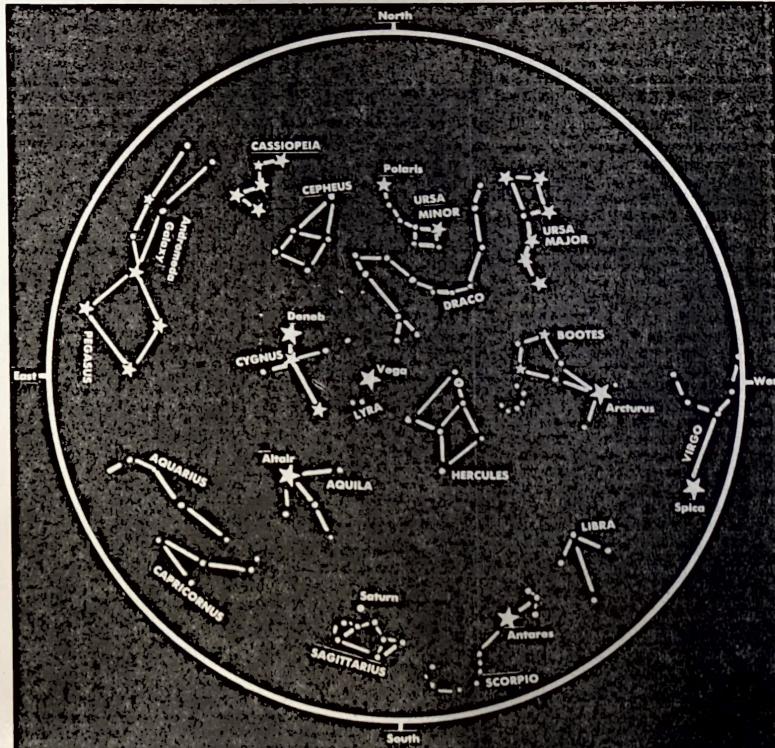
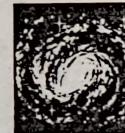
The lunar eclipse, which will be visible throughout the United States, will start near sunset and will be at its peak (totality) from about 10:20 to about midnight.

An eclipse occurs when the orbit of the moon satisfies certain conditions. Before stating this condition, I need to go over some basics of orbital motion.

Orbits are the paths followed by planets and satellites and are described by three laws first put forth in 1619 by Johannes Kepler.

Skywatch

BY BENJAMIN HERSH



THE MILKY WAY is high overhead during the month of August, its highest concentration of stars stretching from Cassiopeia in the north, through Cygnus and Aquila to Sagittarius near the southern horizon.

Celestial map by Ben Hersh and Bob Dix

the long term health of the resource, the wise expenditure of sportsmen's license fees, and the quality (vs. the quantity) of fishing but will then turn right around and vote with their dinner plates, why bother to fight? You might as well call in the hatchery trucks, dump hundreds of thousands of green trout into ponds and streams for an entirely put-and-take "bathtub" fishery, and go home and read magazine articles about high-quality fishing in New York and Minnesota.

But wait — sometimes new ideas that get a public flogging sit around and simmer for a few years and, lo and behold, surface again after people have done some thinking. The two-fish limit that supposedly was anathema to fishermen, particularly in the North Country, is an ethic that has been quietly reconsidered in other parts of the state. At the request of sportsmen, and with little or no opposition, two-fish limits are likely to be set for Lake Waukewan and Winona Lake in Meredith, the idea being to reduce summertime pressure on rainbow trout to stretch the resource for increasingly popular ice fishing. Upper Hall Pond in Sandwich Notch, a potential trophy fly-fishing pond, will get the two-fish limit in response to heavier pressure brought by a new access road. Stonehouse Pond in Barrington may get the same limit to meet greater pressure, and even Profile Lake in Franconia Notch, one of the most heavily fished (and most heavily stocked) ponds in the state, may get a two-fish limit.

A FEW SHORT YEARS AGO, the knee-jerk response to heavier fishing pressure would have been "bring in more hatchery trucks." The theory was that everyone had a right to expect to make several trips to his favorite pond each summer and kill five or seven or even 10 fish to take home. It doesn't take a mental giant to calculate the cost in tonnage of fish if, say, a 30-acre pond had five hundred fishermen who consider it their favorite place to visit three or four times a summer.

But perhaps, finally, the notion of quality over quantity is taking something broader than an elitist hold, and is catching on among the tens of thousands of license-buyers who are more and more concerned with the wise use of not just the resource, but their license dollars. Perhaps, finally, enough fishermen care about putting an end to the put-and-take mentality to make a difference.

And perhaps, in the not too distant future, the North Country will be able to take a more enlightened, sensible and practical view toward how its lakes and ponds will be managed, and will go for a mixed-bag of management that truly offers something for all, and emphasizes quality over quantity.

Thus the day could come when four or five ponds are stipulated as put-and-take, tourist-oriented "bathtub" ponds — the places we send people to when they want to kill seven trout to take back to camp for breakfast, or take home to Manchester in a cooler. Other ponds could be designated two-fish ponds — again, you could catch all you want, but kill only two. On other ponds, fishermen could keep nothing under 12 inches, and on still others, could keep nothing over 12 inches. And finally (gasp), on some ponds you could keep nothing at all.

SOUND RADICAL? In many other states, such thinking is old hat. Fishermen realized long ago that it was ridiculous for everybody to expect to kill lots of fish each day, and for sportsmen's license dollars to support the enormous hatchery and distribution system needed to feed such a consumptive practice.

Perhaps the climate has changed enough in this state to allow us to wean ourselves away

HARRIGAN, Page 3F

from the old ways. I need to go over some basics of orbital motion.

Orbits are the paths followed by planets and satellites and are described by three laws first put forth in 1619 by Johannes Kepler. Kepler was using planetary orbit data gathered by the astronomer Tycho Brahe to compute distances from the sun to the other planets. He was hoping to prove that planets travel around the sun in perfect circles. He ended up showing that planets do not travel in circles, but rather in ellipses. This is the first law.

The shape of the ellipse is given by its eccentricity. A small eccentricity means the shape is almost circular and a large eccentricity means the shape is very elongated. A property of the ellipse is that it has two special points inside. These points are called the foci (the plural form of focus). If you draw lines from each focus to a point on the ellipse, the total length of these two lines is always twice the longer width of the ellipse.

A simple way to draw an ellipse uses this property. All that is required is a piece of corrugated cardboard (or anything that you wouldn't mind sticking pins in), two straight pins, a piece of paper, a pencil or pen, and a piece of string about 10 inches long.

Take sheet of paper and put it on the cardboard. Stick the pins far enough into the paper so that they are stable, about 2 inches apart. Take the string and tie it into a loop. Place the loop around the pins, so that it only touches each pin once. Use the pencil to pull the loop taut. Now start drawing a straight line, always keeping the loop taut. You should start noticing that the line is starting to curve, keep

drawing until you come back to where you started. When you finish you have an ellipse.

The pins represent the foci and the pencil point may represent a planet or a moon in an elliptical orbit. Another of Kepler's laws said that the sun, if you are looking at planetary orbits, is one of these foci. So from the sun's point of view, the planet passes very close then goes away to some farthest point and then starts back. The last of Kepler's laws can be stated that the planet moves faster when it is close to the sun, near its closest approach, and slows down as it moves away.

In 1687, Isaac Newton developed his law of gravitation. He showed that all these properties of orbits are attributable to the fact that planets are subject to the force of gravity, centered on the sun.

THE MILKY WAY is high overhead during the month of August, its highest concentration of stars stretching from Cassiopeia in the north, through Cygnus and Aquila to Sagittarius near the southern horizon.

(Celestial map by Ben Hersh and Bob Dix)

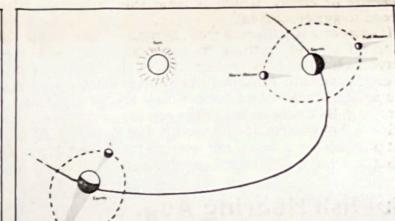
August Sky at a Glance

- .Aug. 7 — Moon at apogee (farthest distance from Earth).
- .Aug. 9 — Moon at first quarter.
- .Aug. 12 — Peak of Perseid meteor shower.
- .Aug. 16 — Full moon. Total lunar eclipse.
- .Aug. 19 — Moon at perigee (closest distance to Earth).
- .Aug. 23 — Moon at third quarter.
- .Aug. 29 — Mercury at greatest elongation from sun, 27.3 degrees.
- .Aug. 31 — New moon.

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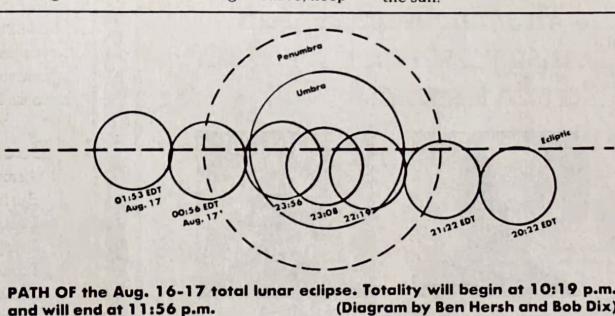
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CONDITIONS for lunar (L) and solar (S) eclipses require that the new or full moon must lie on or near the line of nodes. If the moon is not near the line of nodes, then the moon's shadow cannot cross the earth, nor can the moon pass through the earth's shadow.

All bodies with mass are subject to the force of gravity. Our moon is subject to both the Earth's and the sun's gravity. Because the sun is about one million times more massive than the earth, the moon really orbits the sun and not the earth. The presence of the Earth causes the moon to wiggle back and forth. From the SKYWATCH, Page 6F



AMC Publishes NH-Vt. River Guide Second Edition

BOSTON — Appalachian Mountain Club Books has published the second edition of its *AMC River Guide: New Hampshire/Vermont*. The book is a comprehensive guide to the region's rivers, tailored to the needs of canoeists and kayakers.

The second edition contains completely updated information on more than 2,500 miles of river, and provides a means to find challenging whitewater, serene flatwater and everything in between.

Rivers and their tributaries are listed by watershed and are broken down into segments of reasonable length for canoe and kayak trips.

Tables summarize significant information about each segment of the river:

difficulty, recommended water level and the season or conditions when it occurs, scenery, maps, directions and distances for portages, paddling conditions, and total distance.

The accompanying text provides canoeists and kayakers with essential information on road access, landmarks, cumulative distances from the starting points, and the idiosyncrasies of each river segment.

AMC river guides are continually updated by volunteer committees of experienced paddlers who scout and run the rivers, then give clear descriptions so that paddlers of all abilities can confidently choose the river, section and season to best enjoy New England's rivers.

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Anticipating the Dangers of a Hike

By DANA BENNER

Special to the Sunday News

Most of the articles I have written for the New Hampshire Sunday News have dealt with hiking around the many wonderful places in our state. It is time to devote an article to some of the dangers that might be encountered on these outings.

The dangers a hiker in New Hampshire is most likely to encounter are not those many people will first think of. The animals that live in our forests and fields, for instance, pose little threat to human visitors.

In all likelihood, the most formidable danger a hiker in New Hampshire will face is himself, because the prime dangers of hiking here lie with a person's own carelessness in the wilderness. At the top of the list of careless acts are not carrying a first-aid kit, or carrying one and not knowing how to use it, and succumbing to exposure or heat exhaustion.

A first-aid kit is the most important piece of equipment a hiker can carry. Whether you are only on a day hike or out for a couple of days, an assemblage of items which is a combination survival kit and basic first-aid kit should be with you. Don't worry about weight or bulkiness — this kit can be made quite light and be no larger than a small purse.

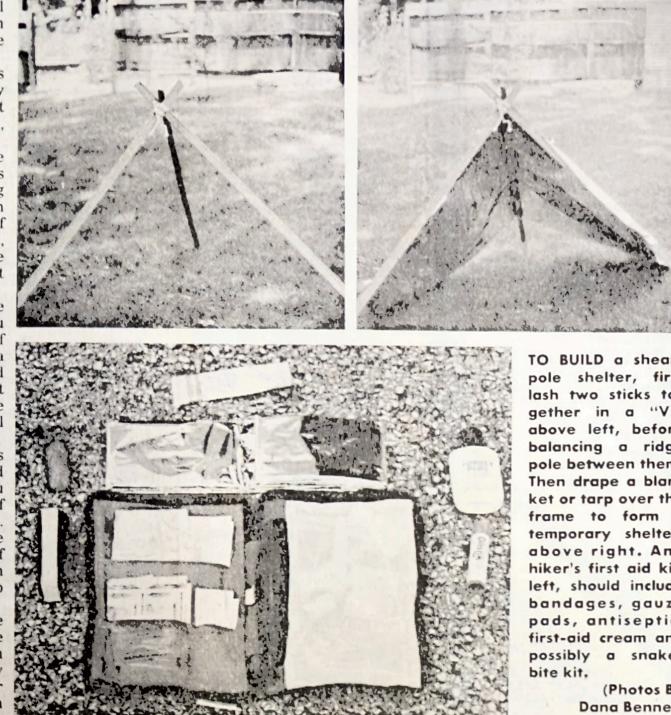
It should contain such basic first-aid items as bandages, gauze pads, antiseptic, first-aid cream and possibly a snake bite kit. You should also add a candle, waterproof matches, safety pins, and a space blanket. Besides the kit, other things that need to be carried in your pack include a short length of rope, a pocket knife and a lighter — a much easier way to build a fire than rubbing two sticks together.

One of the major dangers to people outdoors is exposure, or hypothermia. The word hypothermia means "lower than normal temperatures." This condition may occur after a sudden rainstorm comes up, or if a hiker falls into a lake or stream and then doesn't dry off quickly.

When the human body gets wet and isn't dried off right away, its temperature may drop below 98.6°F. When this happens, a person begins to feel cold, shiver and may begin to lose muscular coordination. Shivering is the body's way of trying to generate heat.

In extreme cases of hypothermia, if the body temperature falls below 90°F., the victim may go to sleep from which he or she may not awaken. At this point, it is very hard to reverse the effects.

The best way to treat hypothermia is to prevent it in the first place. Always carry enough clothing for the unexpected. Even if you don't need it, your hiking partner just might. Wear clothing that will keep body heat closer to the body, such as wool. Wool is much better than such fabrics as flannel at retaining body heat, and will keep the body warm even if it gets wet. Always carry lightweight rain gear and use it even during the lightest of showers. The hiker should



TO BUILD a shear-pole shelter, first lash two sticks together in a "V", above left, before balancing a ridge pole between them. Then drape a blanket or tarp over the frame to form a temporary shelter, above right. Any hiker's first aid kit, left, should include bandages, gauze pads, antiseptic, first-aid cream and possibly a snake-bite kit.

(Photos By
Dana Benner)

victim, and also give him warm liquid, if possible. The most important thing to do is to get the person to professional medical help as soon as possible.

Heat exhaustion is just the opposite of hypothermia. It is caused by the body's extreme loss of salt and water by the process of profuse sweating or strenuous exercise in a hot environment. In other words, the body is overheating. Symptoms of heat exhaustion are pale and clammy skin, profuse sweating, weakness, headaches and cramps, nausea and dizziness. These symptoms usually occur to people who are out of shape and try to do too much too fast. Always remember that heat exhaustion, like hypothermia, can bring down any of us if we are not careful.

If this should happen, move the victim to a shelter in the shade and try to cool the body down. This can be done by placing wet, cool cloths on the victim or even just fanning him. Remove all clothing to help the blood flow

build. The simplest to build is the shear pole-style shelter. To make this shelter, lash two poles together at the top to form a "V." Place another pole, a ridge pole, into the "V," with the opposite end placed on the ground. Drape your space blanket or a tarp over the structure and use your short length of rope to lash the poles together. Use stones or dirt to weigh down the corners and keep the cold out.

Another type of shelter is the simple lean-to, which is made from two poles leaning against a rock or a couple of large trees with your space blanket stretched between the poles. Try to face the shelter away from the sun to keep it cool or face it toward the sun to help warm it up.

Some people think they can rough it and don't need to take precautions. They are dead wrong. Hypothermia or heat exhaustion can strike anybody, even those experienced in the woods, and even despite precautions. This is the reason you should



NH Camping

BY RAY LAROCQUE

Shopping for Campground? Evaluate More Than Price

CAMPERS SEEKING a quiet place to camp have dominated the mail from readers of this column during the past months. This means that there are a lot of folks out there who do not accept the trend toward more activities, more things to do in campgrounds.

Letters from campers who are upset at the steady increase in camping costs also have been prominent in this summer's mail. Some say that campgrounds are pricing themselves out of business.

These thoughts are not supported by the reports I get from campgrounds, however. Some are having a banner summer with full campgrounds almost every weekend. Others report that occupancy is down over last year.

Strangely, the campgrounds that are doing well are not the ones featuring low prices for sites. They're the quality places providing all types of services, even entertainment. Campers, it seems, are willing to pay to get what they want.

Some places that feature nature and a quiet, peaceful atmosphere, are doing well, too. But they too are charging more. The cost of providing "quiet" is escalating, too.

To understand why, campers must realize the factors that influence prices in a campground. Land values and taxes are one of the prime reasons for higher camping fees. The skyrocketing cost of utilities is another.

Then there is the cost of maintenance in which is included labor costs. Getting good, responsible people costs money. Security is another item for which campers must pay. Electronic gates are expensive. Trained people to work on patrols all night also cost.

A camper who shops only with price in mind may find himself in a place with no security and no one to enforce the rules or to keep people quiet when you want to sleep.

My own thoughts on why some campgrounds are not doing well this year vary. Some areas are suffering because of traffic congestion and everyone, even motel and resort owners are suffering. In other cases, I find lack of promotion is causing some

LAROCQUE, Page 8F

This Week's Tides

At Portsmouth*	A.M.		P.M.	
	High	Low	High	Low
TODAY	3:04 a.m.	9:09 a.m.	3:28 p.m.	9:30 p.m.
MONDAY	3:45 a.m.	9:45 a.m.	4:06 p.m.	10:14 p.m.
TUESDAY	4:27 a.m.	10:27 a.m.	4:48 p.m.	11:01 p.m.
WEDNESDAY	5:17 a.m.	11:09 a.m.	5:33 p.m.	11:53 p.m.

warm even if it gets wet. Always carry light-weight rain gear and use it even during the lightest of showers. The hiker should also take along high-calorie food, such as peanuts or candy, which is what the body needs to generate heat.

If someone is suffering from hypothermia, strip off all wet clothing from the stricken person and get him or her into some dry ones, if available. Make a quick shelter using the space blanket and rope which you are carrying. By using your lighter you can start a fire to help warm up the victim. If a fire is not possible, or it is just not enough to do the job then have someone lie alongside the

down. This can be done by placing wet, cool clothes on the victim to help the blood flow. Because this illness is caused by the extreme loss of water, give the victim small sips of warm water to try and replace what has been lost. Don't give him cold water. Cold water will make the person vomit because the stomach is hot and is not in a stable state. The most important thing is to get the sick person to medical attention after he has stabilized.

In discussing both illnesses, I've talked about getting the sick person to a shelter. Emergency shelters are quick and easy to

set up. This can strike anybody, even those precautions. This is the reason you should never hike alone. If you do have to hike alone, always tell someone where you are going and when you are expected back.

Enjoy all that New Hampshire has to offer, but be careful and think about what you are doing. It will be much more fun if you avoid trouble and know how to deal with it if it should happen.

Dana Benner is a freelance writer and photographer who resides in Manchester. He is a frequent contributor to the New Hampshire Sunday News.

Bluefish Hearing Aug. 8

PORTRSMOUTH — A public hearing to discuss a proposed management plan for bluefish will be conducted at 7 p.m. Aug. 8 at the Holiday Inn, 300 Woodbury Ave., Portsmouth.

Bluefish, a coastal migratory species harvested along the Atlantic coast, are important to the New England recreational fishing industry. They were the predominant species (by weight) harvested by marine anglers annually from 1979 to 1987, according to the New Hampshire Fish and Game Dept. Conversely, bluefish comprise only a small percent of all finfish harvested commercially along the Atlantic coast. In 1987, commercial landings accounted for about 15 million pounds of the approximately 125 million pounds of bluefish caught.

Bob Fawcett, marine biologist for the New Hampshire Fish and Game Dept., says bluefish have become more and more important in the state as numbers have increased. "Bluefish seem to be the number one recreational fish along the Atlantic coast," Fawcett said. "New Hampshire party boats depend heavily on bluefish during the summer when other fishing drops off."

A HAIL OF A SALE!



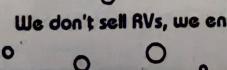
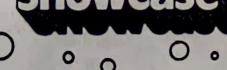
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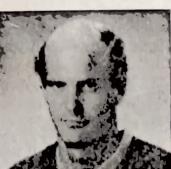
(Continued from Page 2F)

from the put-and-take, kill-your-limit mentality. Perhaps enough of today's fishermen have read about what's being done in other states, or listened to their conservation-minded, quality-oriented brethren, to change their thinking. Perhaps, as we'd like to believe, we've come a long way in a few short years.

I'd like to think so — but I'll believe it when I hear more fishermen saying they had a great trip even though they didn't kill any fish. And I'll believe it when I see vastly differing lakes and ponds managed not just for satisfying the greed factor, but managed (and respected) for their productivity, potential, and individual characteristics.

—Mr. Harrigan's address: Box 28, Lancaster, N.H. 03584.

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THURSDAY	6:07 a.m.	11:58 a.m.	6:24 p.m.
FRIDAY	7:07 a.m.	12:52 a.m.	7:18 p.m.
SATURDAY	8:07 a.m.	1:47 a.m.	8:15 p.m.

* Times are for high and low tides at Portsmouth. For tides at Hampton, subtract seven minutes from Portsmouth high tide times, and add 15 minutes to Portsmouth low tide times. For tides at Dover Point, add approximately one hour, and for tides in Great Bay, add approximately an hour and one-half.

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Travel



TOURIST GRANT PUTNAM visits the Sioux Locks in Sault Ste. Marie. The free-trade agreement between the United States and Canada has opened the floodgates to bargain hunters crisscrossing the border at places like Sault Ste. Marie. But as residents of the Michigan city and its sister city in Ontario have learned, shoppers need to master "border math."

(AP)

Just Say 'Soo' for Two Even Souvenir Seekers Learn To Do 'Border Math'

By PAIGE ST. JOHN
The Associated Press

SAULT STE. MARIE, Mich.

Foreign trade couldn't be much freer than in the Twin Saults, the two cities with the same name separated by the $\frac{1}{2}$ -mile breadth of the St. Marys River and flying different flags. Americans and Canadians go

Saults or the Two Saults, but these cities on opposite sides of the Soo shipping locks are anything but identical.

Historical markers on the U.S. side tell of the treaty taking northern Michigan from the Chippewa Indians. A plaque on Canadian soil remembers the shameful "Chicora Incident" of 1868 when the United States

"It's hard to buy a Canadian souvenir in their Sault," explains Bob Smith, owner of a block of such tourist emporiums as Ships Ahoy, Captains Quarters and the Anchor and Seven Seas motels. "This is where the tourists shop."

Since the signing of the free-trade pact between the two countries, the easy commerce



Passport

By Rick Meyers

Misty's Children Can Still Be Seen

For hundreds of years sailors have feared running aground during rough seas off the coast of Maryland. Many foundered. The Spanish galleon San Lorenzo is supposed to have done just that sometime in the 1820s. All of the ship's passengers were lost, but a few of the horses managed to swim ashore.

The two islands the horses are said to have reached were Assateague in Maryland and Chincoteague in Virginia. Descendants of those original horses roam wild there today. The whole island (actually a 30 plus mile sandbar) of Assateague is a combination of State Park and a National Seashore preserve. The present day ponies have survived more than 150 years and now that they are protected they should be around for future generations to marvel at.

There is another version about where the ponies come from that historians seem to put more faith in. During the 1800s the farmers in the area were taxed on the number of horses they had. It is believed that they turned their horses loose on the island to hide them and avoid taxes. Historians believe many of them were just left there to fend for themselves.

It is truly a sight to behold. Beautiful beaches and marshland stretching more than 30 miles where untamed ponies graze and run splashing along the shoreline. There is also a bounty of bird life and some very attractive small deer all living in peaceful harmony. This is a wonderful place for anyone to visit, but particularly families. Most children have read the classic book 'Misty of Chincoteague' by Marguerite Henry, published first in 1947. You can visit the actual descendants of the Misty in the book.

There are no hotels or motels on the larger Assateague. There are however several campsites where showers and toilet facilities are provided. However, bring plenty of mosquito repellent. Chincoteague is not a reserve and has restaurants and small inns, etc. If you are in Maryland you can find numerous accommodations in the resort city of Ocean City.

The highlight of the tourist season is the annual pony penning festival. The firemen of Chincoteague look after the ponies all year and on the last Thursday in July the ponies are rounded up and herded at lowtide for the annual swim from Assateague to Chincoteague. Once there, an auction is held and a planned number of ponies are sold. The proceeds of the auction go to help with the care of the remaining ponies. The top bid this year was \$2,500.

During the festival week there is a lottery and the winner gets the first pony to reach shore. This year's winner was from New Hampshire. She gave the pony back to the reserve so it could continue to run free. The unsold ponies then make the short swim back to the park.

One of the best ways to see the ponies is to rent a boat in Ocean City, Md., and go by water the short distance out to the island. There are no roads on most of Assateague so you can pull your boat up to an unspoiled area and walk along the beach with the ponies.

What makes it so interesting is that these ponies are wild. Some will come up to your car or you, but there are signs posted telling you that they have, on occasion, been known to bite or kick. However, it is just a very pleasant sight in today's stressful world to see a small strip of coastline left undeveloped and natural, set aside for the use of Misty's relatives.

(Rick Meyers, who owns a group of Manchester-area travel agencies, can be reached at 603-628-2111. Questions and addresses can be sent to him at the New Hampshire Sunday News, 100 Merrimack Street, Manchester, N.H. 03101.)

Americans and Canadians go back and forth across the border in droves to buy bread, have babies or drink beer, without a worry about tariffs or quotas.

"It's an awful savings," Canadian steel worker Richard Shurtliffe says. "It seems everything's cheaper in Michigan."

It's a commerce without national loyalty. In the Sault pronounced it soot, many American women have their American babies in Canada and tourists buy their Canadian souvenirs in the United States.

The biggest traffic jams at Canada Customs are at 2:30 a.m., when the U.S. bars close and Canadians go home.

Customs agent Giacomo Pastore has seen the happy drivers line up for as long as 45-minute waits at the border crossing into Canada.

"It's a ritual," Pastore says. "It's an awful pile of Canadians," Shurtliffe says. Locals call them the Twin

shameful "Chicoro Incident" of 1870, when the United States refused a Canadian military ship passage through the U.S. locks. The Canadians had to walk around the St. Marys rapids.

Sault, Ont., is six times the size of Sault, Mich. The Ontario town of 83,000 has a steel mill, paper mill and a large shopping mall. Its downtown Queen Street is dotted with upscale china shops.

Sault, Ont., also has more movie theaters, a lower drinking age and two strip clubs, says Michigan teenager Dean Newcomb.

Michigan's Sault is a quiet home to 14,500 people, many of whom don't lock their doors. Summer tourism is the major industry. Winter snow is the biggest occurrence. From a three-block drive of kitsch shops, visitors can buy blue wind chimes from Taiwan and T-shirts that say Canada.

Canada?"

trade pact between the two countries, the easy commerce between the Saults has become even freer and easier.

"It seems to have opened up the gate," says Patrick Shannon, Chippewa County prosecutor on the Michigan side. "Trade hasn't changed, but all of a sudden the Canadians have realized they can go shopping on our side. Crossing the border isn't such an issue anymore."

That's a problem. Law enforcement in Sault, Mich., used to be a personal matter. You knew who was having a family fight and who was driving home from the bar.

With so many people crossing over these days, the town is full of strangers. "We don't know who we're dealing with anymore," Shannon says.

Not all of the foreign trade is faring well.

American insurance companies have put a crimp in the once-booming business of delivering babies in Ontario. Ten years ago, as many as 20 percent of the women patients of an Ontario obstetrician, Dr. T. Orr, were Americans drawn by the more-specialized services available in Ontario.

Now, with U.S. Medicare and many insurance companies refusing to pay for health care outside the United States, foreigners make up only 8 percent of Orr's practice.

Because the banks and bars, tourist centers and tollgates all set their own exchange rates, commerce between the Saults can get complicated. Those who cross frequently must master "border math."

Chicago Tribune Map
Detroit

(Rick Meyers, who owns a group of Manchester-area travel agencies, writes each week about world adventures. Questions may be addressed to him at the New Hampshire Sunday News, Box 780, Manchester 03105.)

Away From Home

By Richard Enwright

Georgians Eat Mongolian Barbecue

My fellow Georgian, John Bob Rodebell, chairman and CEO of Hahira Feed and Seed Co., has been traveling in the Far East. This letter was postmarked Taipei.

We landed here about midnight on a China Airlines flight and right away found we'd lost a whole day. It just vanished. One of the flight attendants told me not to worry, we'd get it back on the way home. She said in her job she'd lost a whole gang of days and got every one of them back. My wife, Esther, told me to stop staring at that woman: "Your eyes are getting X-rated."

American tourists need to discover this place. It's loaded with tropical beaches, like Hawaii, big mountains and more flowers than they've got up in Calloway Gardens in Pine Mountain, Ga. The island's big in golf, too, especially since the Japanese turned all their golf courses into TV factories and started flocking in here. The Chinese government had to build a new O'Hare-sized airport just to handle all the Japanese golfers. A businessman in Taipei has made millions with a chain of standup sukiyaki bars.

Taipei's a great city with horizon-to-horizon skyscrapers, like Miami and Los Angeles with Chinese accents: Mom, Pop, baseball, apple pie, expressways and Big Macs.

Anyway, we rolled into the AsiaWorld Plaza Hotel, 30 stories with a John Portman atrium bigger than the whole Holiday Inn down at Valdosta, Ga. It's right in downtown Taipei. Hotel's got eight big restaurants, an eight-story department store, shopping mall, and ice boxes loaded with frosty Tiger Beer. It's hot in summer, about like Galveston, Texas.

People in the Republic are truly serious eaters. They eat maybe four or five meals every day, and every meal's a celebration. But we haven't seen a fat person in the whole place. We figured that their secret to good health is clean living, walking and climbing steps. Must be 200,000 steps in Taipei alone. Elevators are everywhere, but nobody but Americans uses them.

Taipei must have a hundred thousand restaurants, every one better than the other. But who'd have believed that Taipei's got the best barbecue this side of Luther's Whole Hog Smoke Pit over in Columbus, Ga.? How does Mongolian barbecue grab you? If the Mongolians ever show up in Georgia and start a barbecue operation, they'll close Luther down in four days flat.

The Mongolian barbecue house is right around the corner from the AsiaWorld. We just followed the smoke to the front door. Get the picture: It's near 11 at night, Taipei's roaring, and we got the last table in the Mongolians' place. A waiter brought us a pair of big soup bowls and chopsticks. Luther has only pork and beef and it's smoked 24 hours. But the Mongolians have pork, beef, veal, lamb and venison. It's uncooked, shaved thin and heaped up in big meat servers. You get in one of the lines and fill your bowl with meat. Next up are more servers loaded with vegetables, all kinds. Then, there are at least a dozen different kinds of oils and seasonings.

Secret to Mongolian barbecue is at the end of the lines, in another room where two big brick furnaces with oval iron covers, like giant skillets turned upside down, are manned by three Mongolians, two with long-handled wooden paddles, and the other one to keep the furnaces stoked with logs. Flames are blowing up in the furnaces because of the forced air. Whole thing's like a steel mill over in Birmingham, Ala. Anyway, you pass your bowl to one of the paddle handlers. He pours everything on the red-hot furnace top, swishes it around for a few minutes with his paddle, and then sweeps every big back into your bowl.

Yours in the hog, John Bob

(Globe-hopper Richard Enwright writes a weekly travel column for the New Hampshire Sunday News.)

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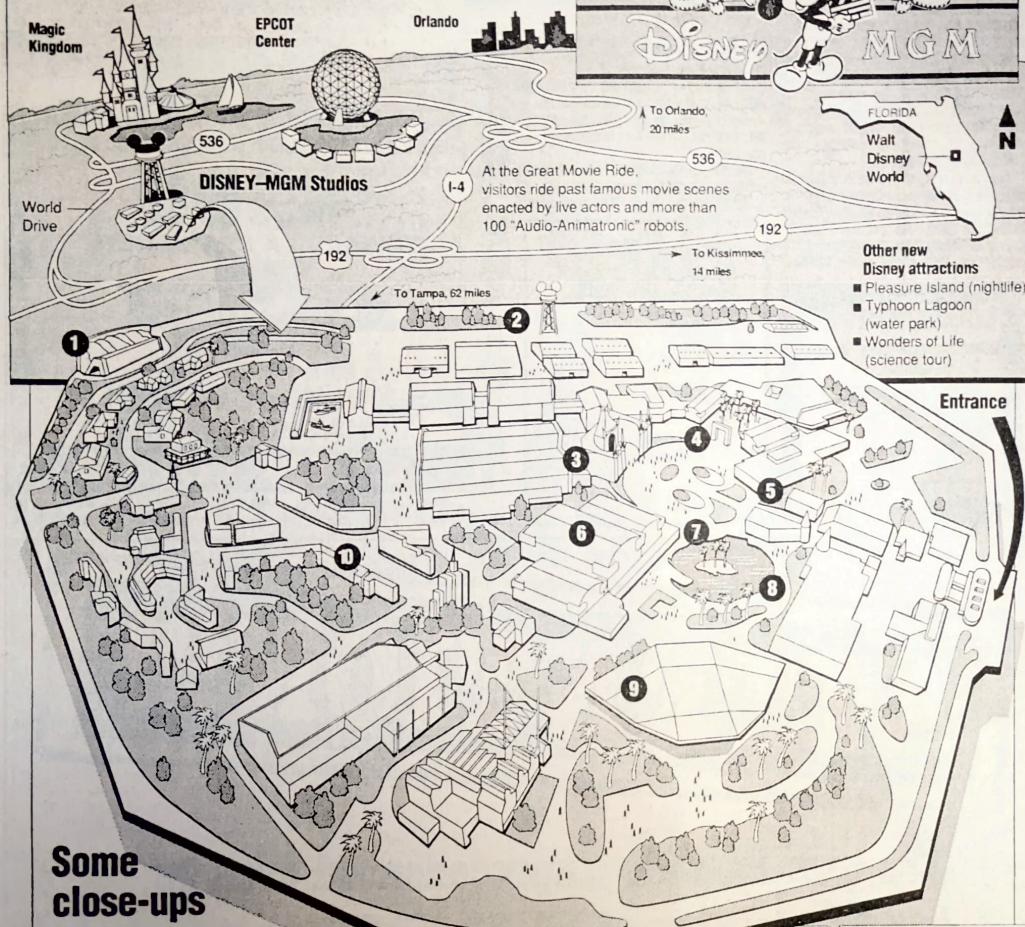
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Disney's new movie kingdom

Visitors will get an inside look at moviemaking at the newest Disney theme park, near Walt Disney World outside Orlando, Fla. The \$400-million Disney-MGM Studios will offer tours of three working sound stages, a back lot and animation studios.



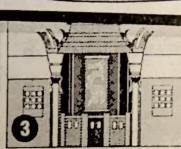
Some close-ups



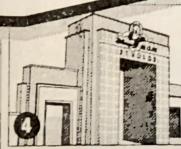
Catastrophe Canyon
Special-effects ride that takes visitors through man-made rainstorms, lightning, and



'Earffel tower'
Non-working replica of the water tower topped with Mickey Mouse ears that's stood at the Disney



Chinese Theater
Entrance to the Great Movie Ride is a replica of the Chinese Theater, a Hollywood landmark.



Studio gate
Tour of movie and TV studios starts at this 1930s-style art deco gateway. It opens onto a



Brown Derby
A 280-seat restaurant in honor of Hollywood's chic Brown Derby. Actors pose as the

It's a Major Hit New Disney Studio Theme Park Expanding To Handle Crowds

ORLANDO, Fla. (AP) — Heavy crowds and unexpectedly long waiting lines will soon force Walt Disney World to double the size of the entertainment portion of its new Disney-MGM Studios theme park, company Chairman Michael Eisner says.

"The demand for it has been even greater than our wildest hopes," Eisner said. "We do not want the lines to be that long. We are trying to rectify it as soon as we can."

Specific plans for the expansion, to be carried out in three years, will be announced in six weeks, Eisner told The Orlando Sentinel last week.

The \$500 million, 135-acre central Florida complex has two sections: the themed area, which is the site of most of the major attractions, and the film production portion, where visitors ride trams and walk through a backstage tour.

Eisner said the studio park "needs to be bigger, and it needs to be on the scale of the other two parks," known as the Magic Kingdom and Epcot Center.

The Magic Kingdom's estimated capacity is 45,000 and Epcot's about 60,000. The studio theme park can handle about half the crowds of the Magic Kingdom.

Because many of its attractions now are geared toward adults, the studio expansion would add more attractions for younger children and introduce more traditional Disney characters, Eisner said.

It also would introduce a nighttime extravaganza — like the fireworks show at the Magic Kingdom and a laser light show at Epcot — plus a themed "land" attraction such as Fantasyland and Tomorrowland now at the Magic Kingdom.

Eisner would not say how much the new construction would cost.

MCA Inc., which operates Universal Studios Hollywood, plans to open the theme park portion of its new Universal Studios Florida to tourists in the Orlando area this coming spring.

Its working studio, which began movie and television production last fall, is billed as the nation's largest outside Hollywood. The studio-and-tour complex is built on a 440-acre site, more than three times as big as Disney's.

Jay Stein, president of MCA Recreation Services Group, has taken issue with Eisner's remarks that Disney's park is "a new concept, a new idea."

MCA officials contend that Disney copied the idea.

"We strongly believe that not only the 'idea' to do a studio tour, but much of the specific content of the Disney attraction originated with Universal Studios, which has been operating a studio tour in Los Angeles since 1964," Stein said in an interview after Disney's studio park opened last May.

New Anti-Smoking Bills for Planes, Trains

Scripps Howard News Service

WASHINGTON — Congress' anti-smoking coalition has launched a new attack that would permanently prohibit cigarette smoking on all domestic airlines and buses and require interstate passenger trains to have "smoking cars."

Several members want to

outlaw cigarette vending machines, restrict cigarette advertising and increase the federal cigarette tax.

Currently, all Amtrak trains in the East have designated smoking and non-smoking cars, but some trains in the West have smoking and non-smoking sections on the same car.

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with Mickey Mouse ears that stood at the Disney Studios in Burbank, Calif., since 1939.

of the Chinese Theater, a Hollywood landmark that was built by Sid Grauman in 1927.

1930s-style art deco gateway. It opens onto a palm-lined street with 1930s California decor.

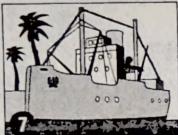
chic Brown Derby. Actors pose as the feuding Hedda Hopper and Louella Parsons.

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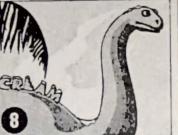
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Superstar Television
At the theater behind this art deco facade, a non-stop 30-minute show gets visitors into the act in old and current television shows.



Min and Bill's Dockside Diner
The 1950s "California crazy" architecture of this 140-seat sandwich cafe is a mocked-up tramp steamer.



Dinosaur Gertie's
Ice-cream restaurant built in a reconstruction of the classic animated cartoon character. Its slogan: "Ice cream of extinction."



Epic Stunt Theater
Live show in this 2,000-seat theater recreates stunts performed in the classic adventure films. Performers demonstrate movie stunt work.



New York street
The movie back lot includes this mock-up of a New York City street, with skyscrapers painted on a backdrop. Visitors can watch filming here.

Source: The Walt Disney Company

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Lunar Eclipse Aug. 16

SKYWATCH

(Continued from Page 2F)

Earth is tilted by 5 degrees to the Earth's orbit around the sun, the plane of which is called the ecliptic. Because the orbit is tilted, it intersects the ecliptic at two points. The line connecting these two points is called the line of nodes. When the moon sits at one of these points, the Earth, moon and sun lie in the same plane.

The line of nodes is very important to the occurrence of eclipses, as is the phase of the moon.

Because all bodies in the solar system receive their light from the sun, they all cast shadows. At any given moment, half the surface of a planet or moon is illuminated by the sun. Because the moon appears to orbit the earth, there are times when all of the sunlit surface is pointing toward the Earth. This is called the full phase. There are also times when all of the shadowed surface is pointing toward the Earth, the new phase. The period from new moon to new moon is 27 days. It is interesting to note that this is also the period it takes for the moon to rotate once around its axis. Because these two periods are identical, one side of the moon is always facing the earth. This is why we always see the same features on the moon.

An eclipse requires that the line of nodes points toward the sun and also for the moon to be in either the new or full phase. When the moon is in its

new phase there will be either a partial or total solar eclipse. When the moon is in its full phase, there will be either a partial or total lunar eclipse.

During a solar eclipse, the shadow from the moon crosses the earth's surface. Anyone standing in this shadow will see the sun blocked by the moon. It is interesting to note that both the sun and the moon have almost the same apparent size as seen from the earth. This is caused by the fact that the sun is about 400 times the size of the moon but is about 400 times farther away.

There are three types of solar eclipses. There is the partial solar eclipse. This occurs when the new phase does not occur exactly on the line of nodes, but close to it, so the moon only covers part of the solar disc. This is the total solar eclipse, which happens when the new phase occurs exactly on the line of nodes. If the new phase also occurs near a time when the moon is near its farthest point from the earth, then the apparent size of the moon is smaller than the sun and not all the solar surface is hidden during the eclipse. This is called an annular eclipse and this is the more common type of solar eclipse.

When the full phase occurs on the line of nodes, the moon passes through the earth's shadow and we get a lunar eclipse.

The earth's shadow has two parts—the dark part cast by the planet itself called the umbra, and a semi-shadow region at the

fringes of the umbra known as the penumbra, where small amounts of light scattered through the Earth's atmosphere penetrate. The light in the penumbral region is mostly red because the atmosphere has scattered all but the red part of the sunlight. This phenomenon explains part of what occurs visually during a partial or total lunar eclipse.

As a final remark about eclipses, solar and lunar eclipses occur as a pair. If the conditions are right for a total, or near total, lunar eclipse, a solar eclipse will occur at the next new moon.

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In the case of this lunar eclipse, there is a total solar eclipse.

Following is a timetable for the Aug. 16 total lunar eclipse, all times EDT (see also diagram on Page 2F):

8:22 p.m., Aug. 16: Leading edge of moon enters penumbra.

9:20 p.m., Aug. 16: Leading edge of moon enters umbra (first contact).

10:19 p.m., Aug. 16: Total eclipse starts (second contact).

11:56 p.m., Aug. 16: Leading

edge of moon exits umbra (third contact).

12:55 a.m., Aug. 17: Trailing edge of moon exit umbra (forth contact).

1:53 a.m., Aug. 17: Trailing edge exits penumbra.

—Ben Hersh is a graduate student of physics at the University of New Hampshire and director of the UNH observatory. His column, *Skywatch*, appears the first Sunday of each month in the New Hampshire Sunday News.

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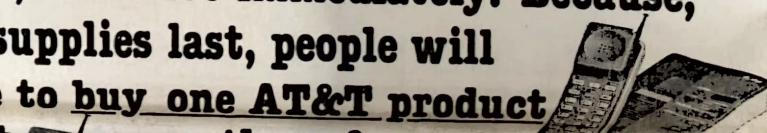
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Two Rural Americas: One Hangs On, One Disappears

DECLINE

(Continued from 1F)

try will be forced to live in a metropolitan area," said Rep. Glenn English, D-Oklahoma, whose House Agriculture subcommittee opens hearings tomorrow on rural development. The first hearing is in Clarksdale, Miss.

Future hearings will be in Amarillo, Texas; Marshfield, Iowa; and Blackfoot, Idaho.

Nearly 1 million people left rural America in 1986-87. "That scenario is good for no one," said English. "It would overburden our cities and suburbs as much as it would devastate our rural communities."

Through the '80s, rural America has witnessed a decline in services and jobs and a rise in poverty.

"You can draw a lot of parallels between remote rural areas and the inner city," said the Aspen Institute's Duncan. "In both cases, people with education and skills left.... You end up without a middle class, without role models. They don't have the economic security and economic opportunity. They can't invest in the schools and good government at the local level."

Television has let the rural poor "know how different their lives are from the rest of the world," said David Lollis, director of the Federation of Appalachian Housing Enterprises in Kentucky.

Proposing up many dying small towns is the elderly retired population, which lives off transfer payments such as pensions, medical and disability insurance and income maintenance programs. In nearly half of Kansas' counties in 1985, 44 percent of income came from transfer payments or property income.

"The world has changed and our population has aged," said Mary Schissel, city clerk in Dougherty, Iowa, a town of 128. "A lot of our leaders want to take a break. They're in their mid-to-late-60s. They say it's time for someone else to do this."

But who? Not young people. Of the hundreds of thousands leaving rural places in 1986-87, one-third were 18 to 24 years old. More than half had at least one year of college.

"The brain drain in rural areas is enormous," said Bob Bergland, agriculture secretary under President Carter and now head of the National Rural Electric Cooperative Association. "The kids who stay are the ones who fail to graduate.... You can't get an employer who requires a high level of skill to come into a place with crummy schools."

And without jobs, people leave.

"If you've got a college degree, about the only thing you can do is become a teacher or a nurse, and there are dozens of applicants for every job," said Anne Smith of Bainville, Mont., who spends her work week 10 miles from her husband so her teacher's salary can help pay for their ranch.

Hard times on ranches and farms in the early '80s also pushed many people off the land.

"Our biggest worry right now is we've lost an entire generation of farmers," said Heather Ball, an economist with the Texas Department of Agriculture. "You don't go out to rural Texas and find young farmers anymore. The whole future has packed up and moved away."

It's a new chapter in an old story. Farm population has been dropping since 1916 and small towns have been struggling for more than a century, said Beale, the Agriculture Department demographer. He cites a book titled "Dead Towns of Georgia" — published in 1874.

New figures do provide a bit of good news for farmers who toughed out the '80s. For 1988, Agriculture Department studies said net farm income was at a record high of \$57.7 billion — though some experts caution that a small percentage of large-scale farmers account for a huge chunk of that.

Also last year, loan delinquencies reported by the Farm Credit System dropped \$2 billion to half the level of two years ago. Two thousand farmers filed Chapter 12 bankruptcies, but that was less than a third of 1987's filings.

There is prosperity in some rural areas — often in towns

"The brain drain in rural areas is enormous. The kids who stay are the ones who fail to graduate.... You can't get an employer who requires a high level of skill to come into a place with crummy schools."

— Bob Bergland
National Rural Electric Cooperative Association

with a unifying core such as a county courthouse or a medical center, usually near a major highway.

"If your town isn't on an interstate, forget it," said James R. Shortridge, a cultural biographer at the University of Kansas.

"Development comes more quickly within 100 miles of a major trading center or a city," Bergland said.

For many small towns, survival is assured with the arrival of a major merchandising center with an anchor store, usually a Wal-Mart.

And yet this regional draw for one town often takes customers away from the Main Street retailers of surrounding communities.

Rex Campbell, a University of Missouri rural sociologist, considers the spread of chain stores a major reason for the shifting rural landscape.

"Wal-Mart is the innovator, they know how to target growth and they're expert marketers and mass merchandisers. They were able to go into smaller markets than K mart or other competitors, and now they're replacing several mom-and-pop

businesses, which formerly sold hardware, dry goods, clothes, shoes, and such."

After Wal-Mart and some other discounters moved into Mason City, Iowa, people in outlying towns noticed their business dropping off.

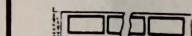
Gene Persons, who has a grocery in Sheffield, 16 miles away, acknowledged, "We sit here and try to do what we can to stop them.... There's only so many dollars to go around." He and others have formed a "commonwealth" of neighboring small towns that pool resources to promote themselves.

For other pragmatic rural residents, adapting means working in the city in order to live in the countryside.

Some Missourians, for example, drive 150 miles each way to the Chrysler Corp. plant in the St. Louis suburb of Fenton to earn \$15 an hour, Campbell said. "For every \$1 of hourly wage, they'll commute an average of 10 miles each way."

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Ultimately, authorities say, these approaches will not be enough to ensure the survival of many little towns. They must rebuild their economies locally — get access to investment money, telecommunications, transportation and educational opportunities. Perhaps most importantly, they must diversify.

"How does rural America participate in the growth of a service-oriented economy? That's the basic underlying question," Beale said. "It can't come out of agriculture. It has to come out of the industries driving the national economy."

Rural residents must even look beyond that, to the global economy. While corporations in the '50s and '60s moved to rural America for cheaper labor, now the Third World market is

even more enticing.

"What it means for people is the same — someone is out of a job, a small town is dying," said Ann Tickamyer, assistant professor of sociology at the University of Kentucky. "Unless major efforts are taken to re-evaluate what we want in a rural economy, the prognosis is fairly grim."

A few residents, perhaps, will stay on in small towns that don't rethink and adjust, that don't go looking for employers to diversify a one-industry, boom-and-bust economy.

"Those little places are never going to die, there will always be a housing unit or so, but they'll deteriorate," Campbell said. "What has been lost is the heart, and what you're left with is the shell."

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Facts, Figures About Rural America

By The Associated Press

Here are some facts about rural America, provided by the U.S.

Facts, Figures About Rural America

By The Associated Press

Here are some facts about rural America, provided by the U.S. Department of Agriculture, the Census Bureau, the American Hospital Association, and the Center on Budget and Policy Priorities, a research organization.

□ □ □

● **Population:** Nearly 64 million people live in rural America — more than a quarter of the U.S. population. In 1950, rural residents were more than a third of all Americans.

In 1985-86, 632,000 people moved out of non-metro areas, the government says. In contrast, in the 1970s, non-metro areas (often used synonymously with rural) netted more than 350,000 people a year.

□ □ □

● **Farming:** Farming reached an apex in 1916 and the population has been falling since. In the early and mid 1980s, rising interest rates and declining land values contributed to an exodus that saw more than 1 million people leave the land and 273,000 farms go out of business from 1980 to '88.

□ □ □

● **Unemployment:** The fading small-town economy, the early '80s recession, the movement of factory jobs to the Third World and increasing mechanization in coal mining, agriculture, timber and paper mills have shrunk employment opportunities.

From 1979 to '86, rural areas lost 733,000 manufacturing, mining and farm jobs, the government reports.

Unemployment in non-metro areas averaged 6.9 percent for 1988 compared with 5.1 percent in metro areas. In 1979, the metro jobless rate was higher.

Another major shift in rural America has been the dramatic rise of farm women in the labor force in the past two decades. According to 1980 census figures, more than half of all farm women worked outside the home; 78 percent in a University of Nebraska seven-state study said economic reasons drove them into their new jobs. In 1940, 12.1 percent of farm women were in the labor force; in 1960, it was 22.9 percent.

□ □ □

● **Poverty:** More than 9 million of America's poor live outside metro areas, according to a 1989 report by the Center on Budget and Policy Priorities, a Washington group that researches issues relating to the poor. The rate of non-metro residents living in poverty increased from 13.7 percent to 16.9 percent from 1977 to '87, the report said.

For blacks, poverty is more common in non-metro areas than in central cities, it said. More than half of all non-metro poor live in the South and less than 10 percent of the rural poor live on farms.

□ □ □

● **Services:** Deregulation led to cutbacks in air and bus service, leaving many small towns more isolated than ever. From 1982 to 1986, 4,514 places lost bus service, according to the Interstate Commerce Commission. From 1980 to '88, 208 rural hospitals closed, the American Hospital Association said.

Medicare payments to rural hospitals are smaller than to urban ones, based on the premise that services cost less.

□ □ □

Shop Carefully for a Camp

—LAROCQUE

(Continued from 3F)

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Malls an Illusion of Happiness:

'People Don't Want To Be Accosted With Reality When Shopping'

MALLS

(Continued from 1F)

What effect has the mall had on the American society?

For one thing, malls have tended to make communities less parochial. Town squares tended to be insular by nature, Marsden says, while malls seek out a regional market.

"There's a much more open quality and less provincialism," he says, "and that can be good."

Though malls may be moving toward becoming "true town centers," one important distinction between public squares and shopping malls remains: ownership.

Not surprisingly, mall owners try to fight increased public use of their property.

In 1980, for instance, a group of anti-nuclear activists was ejected from Long Island's Smith Haven Mall for handing out leaflets opposing the Shoreham nuclear power plant.

The activists later sued the mall, claiming their right to hand out the leaflets was protected by the First Amendment.

After protracted legal battle, the New York state Court of Appeals ruled in 1985 that a mall has the right to prohibit leafleting.

"It's a private property issue,"

Robert Flynn, contractual manager for Smith Haven, says. "Personally, I will always fight to preserve the rights of the owners of the property."

But early this year, Gov. Mario Cuomo challenged that by introducing a bill in the Legislature.

"Traditionally, the exercise of (First Amendment) rights took place on city streets or village greens," a statement in support of Cuomo's bill argued. "Modern patterns of settlement and retailing practices have made shopping centers and shopping malls today's village greens."

Nevertheless, on May 8, the state Assembly defeated the bill, 69-59, effectively killing it until at least 1990.

New York's struggle with the issue is not unique. In 1980, the U.S. Supreme Court ruled that individual states have the right to interpret the rights of free speech in shopping centers.

Since that time, 13 states have ruled on the subject. Nine, including Michigan and Massachusetts, ruled in favor of free speech. The remaining four, including Washington State and Wisconsin, decided in favor of the mall owners.

Though New Hampshire has yet to rule the question, the Granite State's largest mall — Pheasant Lane in Nashua — has adopted an attitude of openness.

"We evaluate each group that comes in," Szymanski says. "We ask that they stay in certain

confines and conduct themselves professionally. We don't want them to interfere or anger our customers."

In Washington State, a 71-year-old man served four months of a year-long prison sentence for distributing world peace handbills in a Seattle mall.

Mall owners are reluctant to give different groups speaking rights, Marsden says, because they fear it will scare away shoppers and cut into profits.

"Malls give the illusion of happy reality," he says. "People don't want to be accosted with reality when they're shopping."

But malls today are establishing their own sort of reality.

Teenaged "mall rats," known for squandering their time in the halls, can now apply to college for specialized programs in mall management. Ohio's Youngstown State University has become the nation's first college to offer a degree program in mall management, according to the program's director, E. Terry Deiderick. Youngstown also happens to be the home of the DeBartolo family, developers of many mall complexes and owners of the San Francisco 49ers.

Scores of other colleges offer specialized courses in mall management. Even Harvard has professional development courses in shopping center development and retail space design.

Fund Contributors Recognized

CONCORD — New Hampshire's nongame wildlife fund drive fell \$16,000 short of reaching its goal of \$50,000.

"We're disappointed, of course, that we weren't able to secure the full amount, but we're grateful to everyone who contributed," said Anne Tappan, coordinator of the Nongame Wildlife Program for the New Hampshire Fish and Game Dept.

The largest contribution was an anonymous donation of \$13,091. Other large gifts were given by the Natural Area Conservation Fund, New Hampshire Charitable Fund, Concord (\$5,000); the Henley Group, Inc., Hampton (\$5,000); Indian Head Banks, Nashua (\$1,500); the New Hampshire Wildlife Trust (\$1,500); New England Outdoor Writers Association (\$548); Signal Capitol Corp., Hampton (\$500); and Great Bay Estuarine System Conservation Fund (\$200). Donations from individuals added another \$6,450 to the fund.

The New Hampshire program is not the norm. "Most states finance their nongame programs through special taxes or Tax checkoffs, but we depend on donations," said Tappan. "Every dollar donated, up to \$50,000 is matched annually by money from the state's general fund."

Even though the maximum in donations was not raised for this fiscal year's program, Tappan said she is optimistic. The \$33,790 raised means \$67,580 in the nongame coffers. Adding funds remaining from the past year's program brings the total available funds to about \$85,000.

The nongame wildlife program has three elements: research, management and education. Grants are awarded to individuals, education centers and conservation groups for work in each of these areas.

Donations may be made at any time and are tax deductible.

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Criterium Bike Race

Aug. 13 at Nashua

NASHUA — Entries are now being accepted for the annual Nashua Velo Club-Nashua Trust Criterium Bicycle Race Aug. 13 at Holman Stadium.

Pre-registration is encouraged and the first 150 entrants will receive a free T-shirt. Day-of-race registration is 7:30 to 8:30 a.m., although the number of participants will be limited.

There are categories for the entire family, including tricycle races, which start at 9 a.m. Entry fees range from \$2 to \$8.

From noon to 6 p.m., many of the top United States Cycling Federation racers from all over the country will be competing.

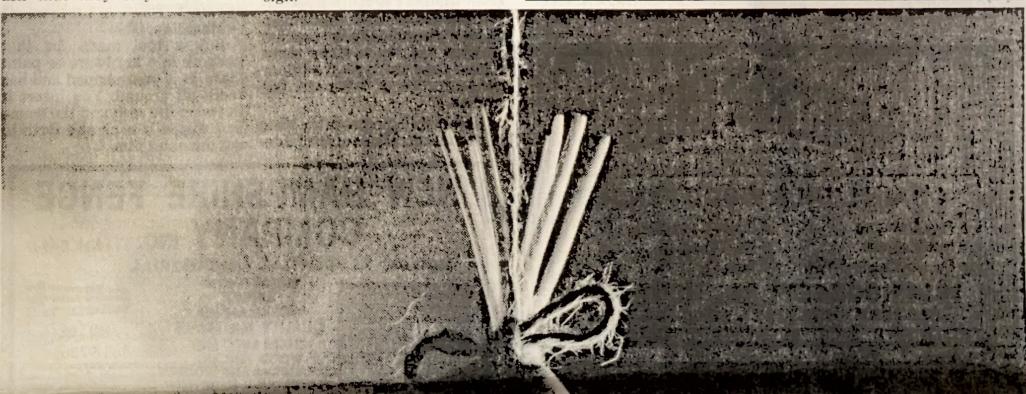
Spectators are welcome, and there is no charge for admission.

A \$30 registration fee and a little time fund-raising will buy breakfasts, dinners, lodging, trek shirts and all of the trek's support activities. All trekkers will win prizes or gift certificates for their fund-raising efforts, and the top fund-raiser will receive a ski weekend for two at the Balsams Grand Resort Hotel.

Men and women of all ages and bicycling ability are welcome to register. For further information, contact Lauren Rooney, Granite State Bike Trek, American Lung Association of New Hampshire, 456 Beech St., P.O. Box 1014, Manchester, N.H. 03105, or call (603) 669-2411.

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Further information may be obtained by contacting Goodale's Bicycle Store, 46 Main St., Nashua, or by calling (603) 882-2111.

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Home

Airtight House May Hold Pollution

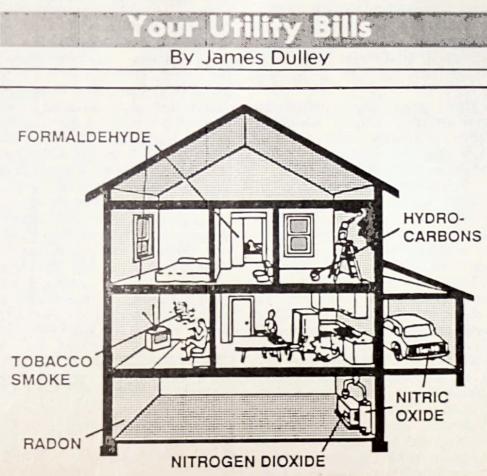
We're adding a room and making many energy-saving improvements to the entire house. Is there a possible problem from formaldehyde from the insulation since our house will be more airtight? W.W.

Unless you blow urea formaldehyde insulation into the walls, the insulation material itself will not be a major source of formaldehyde. With your house more airtight, the other building materials may create a formaldehyde hazard. Indoor air is often more polluted with many chemicals contaminants than the outdoor air.

The symptoms of formaldehyde sensitivity range from mild to severe sinus irritation, headaches, dry or sore throat, burning eyes, dizziness, nausea, and diarrhea. Young children and the elderly are often more strongly affected. If you have these symptoms, contact your physician.

Formaldehyde is used in the materials of hundreds of items commonly found in houses. In particular, formaldehyde compounds are used in plywood and particle board cabinets and furniture, carpets, curtains, and upholstery.

During the heavy air-conditioning season, when your house is closed and the humidity level is higher, the indoor formaldehyde level can get higher. New-



AIR CAN BE HEAVILY POLLUTED IN AIRTIGHT HOUSE

ly-constructed houses often have higher formaldehyde levels from the outgassing of the building materials and new carpeting.

There are home-use formaldehyde concentration test kits available. You uncap a small test bottle for seven days. Cap it

again and send it to a laboratory for analysis. Since formaldehyde concentrations vary throughout the day, a seven-day measurement period provides a good average.

Since you want to save energy, open windows as much as possible instead of air-conditioning. Indoor formaldehyde concentrations can reach many times higher than the typical outdoor concentration of 0.01 parts per million.

New mobile homes often have high concentrations of formalde-

hyde. They are built very airtight and have a lot of plywood and particle board. Since they are quickly built in a factory, there is little time for the formaldehyde to outgas from the new materials before it is completed.

If you find your family is effected by a high concentration of formaldehyde in your home, an air-to-air heat exchange ventilation system is an energy-efficient option. It runs the fresh outdoor air through a heat exchanger and it is either heated or cooled by the exhausted indoor air.

Write to me for Utility Bills Update No. 234 listing formaldehyde and 12 other pollutants commonly found in indoor air, possible sources inside a house, and health symptoms, and information on the home-use formaldehyde concentration test kits. Please include \$1 and a self-addressed envelope.

(James Dulley helps readers keep a lid on their home energy expenditures. Write to him in care of the New Hampshire Sunday News, 6906 Royal Green Drive, Cincinnati, Ohio 45244.)

Liberate Windows

I forgot to open my windows after painting them. Now they are stuck. How can I free them? — Hamilton, Ohio

Buy a tool made for that purpose in a hardware or paint store. It is pear-shaped and has teeth all around. You insert it between the sash and the frame and wiggle it back and forth to cut the paint film.

Collectibles

By Lita Solis-Cohen

If Lithograph Is Real, It's Valuable

I hope you can tell me the value of a framed lithograph entitled "Peytona & Fashion in Their Great Match for \$20,000 Over the Union Course, L.I., May 13, 1845." It is further identified as "From Nature & in Stone by C. Severin, Lithographed and Published by N. Currier, 1250 Nassau St., Corner Grace, N.Y." — G.W.M., Agawam, Mass.

I asked Don Creswell at the Philadelphia Print Shop about your Currier & Ives print, "Peytona & Fashion," and he says if it is genuine it is a very valuable print.

One way to tell if it is original is to measure the colored portion. Not including the margins, it should measure 17.13 x 28.10 inches, according to Frederic Cunningham's "Currier and Ives Prints, An Illustrated Check List," published in 1970. Cunningham valued it nearly 20 years ago at \$3,000 and noted that the collector Harry Peters included it in his list of the Best Fifty large folio size Currier and Ives prints.

In 1987 Craig McClain issued "An Illustrated Value Guide to Currier and Ives," (which Creswell sells for \$16.95) and that book values it at \$11,000.

Price guides can be misleading because you must first establish that your print is genuine. If it is not original it has very little value, and the "Best Fifty" have been reproduced often since the 1920s.

If it is genuine, then the condition affects the price. Soiling, tears and cut margins hurt the value. But Currier and Ives prints are exceedingly popular with collectors and your print worth investigating. You might show it to more than one print specialist for an opinion.



As Plainfield, N.H., was Maxfield Parrish's home town, there are a lot of prints of his works here. I have some of his last "girl" calendars: "Moonlight," printed in 1934, which I posed for.

Parrish was a great old fellow. We were neighbors after I married and he was just as friendly as you can imagine. He did paint another picture of me with a frog, which he called the Frog Prince and which he gave to his lifelong companion Sue Lewin, who willed it to her niece.

Anyway, what do you suppose a copy of "Moonlight" is worth? I even have a copy complete with calendar pad and the envelope it came in. — K.R., Plainfield, N.H.

Your prints by Maxfield Parrish called "Moonlight" are worth \$950 each, according to Nicky Isen at I. Brewster, a gallery specializing in prints and paintings by Parrish and the French artist Louis Icart, in Philadelphia.



I have an old Beatles record, a 45 rpm Capital with its jacket. The oddity is that "And I Love Her" plays on both sides even though the label on the other side reads "If I Fell." Have you any idea if this record, recorded in England about 25 years ago, has any value? — C.L., Westfield, Mass.

You have a mis-pressing and actually get half the songs you paid for. But some Beatles collectors want pressing errors. If it is in good shape, it may be worth \$20, twice as much as one that's right, according to Perry Cox who wrote "The Beatles Price and Reference Guide for American Records" (\$18.95 from the author, P.O. Box 82278, Phoenix, Ariz. 85071).

Cox says Beatles records have sold for as much as \$10,000 for "Yesterday and Today," released in 1966. It was the very first

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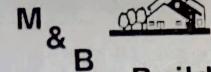
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the author, P.O. Box 62276, Phoenix, AZ 85062-2761.
Cox says Beatles records have sold for as much as \$10,000 for a single album. That one was a sealed, unopened copy of "Yesterday and Today" released in 1966. It was the very first issue of that album and it featured a very controversial cover, depicting the Beatles wearing butcher's smocks with decapitated baby dolls and raw meat strewn about them.

"You can imagine the offense taken in 1966," Cox said. "The president of Capital Records, Alan Livingston, insisted it was intended as pop art satire but was misinterpreted. Nevertheless he withdrew it and replaced the cover with an acceptable design of the Beatles sitting around an empty trunk."

Your record is not such a high priced Beatles item, but neither is it a \$2 item, like some. It is one of the 1,700 records listed in Cox's book and has gone up in price considerably in the past three years.

The Beatles market is hot. You can sell your record by advertising it for sale in "Discoveries," Box 225, Port Townsend, Wash. 98368. The ad will cost 10 cents a word. You might ask for best offer, minimum bid \$10.



Questions about antiques may be sent to Lita Solis-Cohen in care of the New Hampshire Sunday News, P.O. Box 780, Manchester 03105.)

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Basement Workshop

By Larry Eisenger

A Guide to Customized Sprinkling

Recently, I touched upon laying out an underground sprinkler system by dividing your yard up into various areas so you can choose the correct number and type of sprinkler heads to fully utilize the gallons per minute (GPM) of water you have available. Remember, few homes have enough water flowing from one outlet to water a complete yard — which is why lawn and garden areas are divided into small separate sections and watered section by section.

Sprinkler heads are available to cover just about any area and they are either molded plastic or cast and machined brass or bronze. For the homeowner the plastic heads are totally adequate and the cost is substantially less than comparable metal units.

• **IMPULSE TYPE** which is designed primarily for lawn areas and covers a wide radius by squirting a stream of water. Two types are available, the flush-in-the-ground type that pop up when the water is on and above grade head that is mounted on a riser. The riser type, also illustrated in Figure 1, is ideal for a perimeter system because it is out of the way and located on the edge of the lawn. The above grade impulse sprinkler covers the same area as the flush pop-up impulse type and costs about a third of the retracting flush head type. Both can be adjusted to cover any part of a circle and the diameter of the circle.

• **POP-UP SPRAY** — illustrated in Figure 2 — does just that; when the water is turned on the head pops up. The only moving part is the center spray tube which slides up only when the water is on; when the water is turned off a stainless steel spring inside the case pulls the head down flush with the surface. The head can be adjusted to cover any part of a circle (square coverage also is available) and the amount of water used depends upon the area covered. Study the illustration.

• **SHRUBBERY SPRAY SPRAY** heads are illustrated in Figure 3, and these come in models that cover a full, half, quarter circle and even a rectangular strip. Unlike the impulse type they have no moving parts, are very economical but must be mounted on a riser. The height of the riser above the ground depends upon what you want to water.

• **BUBBLER HEADS** — illustrated in Figure 4 — also are mounted on a short riser, but the circle of spray is directly downward toward the roots and avoids foliage that should not be watered. Roses are an excellent example. The average lawn and garden will require many if not all of these heads and the best way to learn about them is to buy a sprinkler head hose connected spike, illustrated in Figure 5, and screw each head to the top of the spike to see how the various heads work. Cost of a hose spike is minimal and well worth the investment.

Larry Eisenger has published a book on plumbing and heating. Send \$4.65 to Home Workshop, care of the New Hampshire Sunday News, Box 158, Staten Island, N.Y. 10314. Make check payable to Eisenger Communications Inc.

Furniture Restoring Isn't 'Instant'

By COUNTRY LIVING
A Hearst Magazine

To avoid big problems, novice furniture restorers should start small. Begin with a grand piano and you will soon run out of steam.

That's because "instant" is not part of the restorer's vocabulary, according to Country Living, and many procedures call for lots of old-fashioned elbow grease. Executing the technique in the old-fashioned way involves a step known as "spiritizing off," which requires removing the lubricating oil and burnishing the wood's surface using a pad charged with alcohol.

Skimping on it can produce poor results.

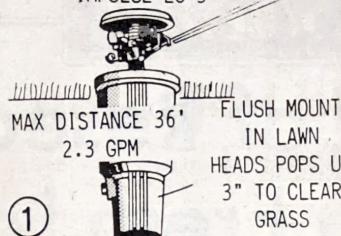
pressure, one must also chose the right abrasive and know how different types of wood react.

An awareness of feel and touch plays a particularly important part in French polishing, a procedure still used for some beautiful old pieces.

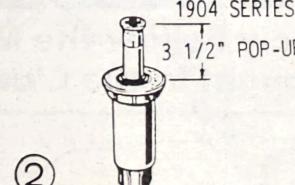
Executing the technique in the old-fashioned way involves a step known as "spiritizing off," which requires removing the lubricating oil and burnishing the wood's surface using a pad charged with alcohol.

UNDERGROUND LAWN AND GARDEN SPRINKLER HEADS

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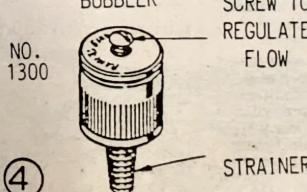
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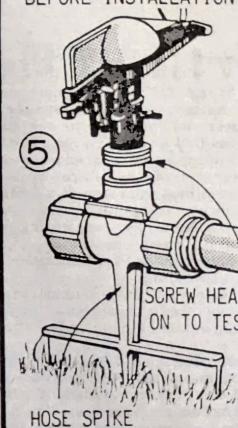
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not part of the restorer's vocabulary, according to Country Living, and many procedures call for lots of old-fashioned elbow grease.

Skimping on it can produce poor results.

Every amateur restorer wants to know trade secrets, but in reality learning to read, understand and follow product instructions may be the most important trick of the trade — although some manufacturers do a poor job of presenting directions.

The label on a small can of finish may contain very fine print, but you must make the effort to read the text even if it means using a magnifying glass.

Pay special attention to passages pertaining to finish used on both old and new wood and to steps for applying additional coats.

Sanding the wood's surface may seem a simple procedure, but the worker must develop a feel for it. Beginners often sand with a force somewhere between a sumo wrestler and a little old lady.

Besides using the proper

Execution of the old-fashioned way involves a step known as "spiriting off," which requires removing the lubricating oil and burnishing the wood's surface using a pad charged with alcohol.



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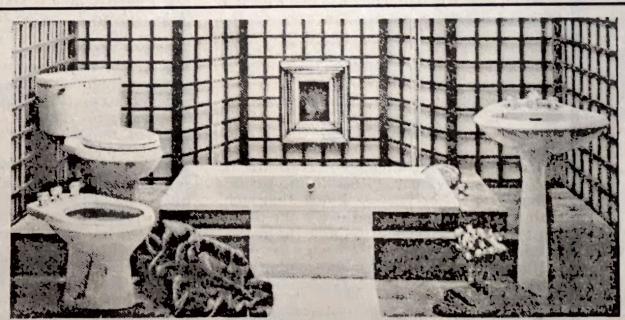
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Science

By KEAY DAVIDSON
San Francisco Examiner

N SCHOOL, science teachers taught you something called the "scientific method." There's just one problem: scientists almost never seem to use it.

The modern world is a product of centuries of scientific research — spaceships and vaccines, television and radiotelescopes, computers and genetic engineering. Naturally, some historians have asked how it all came about.

Their surprising answer: less romantically than you might think.

Little history of science is taught in schools, and what's taught is dispensed in the form of inspirational tales akin to Sunday school fables.

In these tales, scientists are cool, objective investigators who seek truth unswayed by personal ambition or prejudice. "God give me strength to face a fact though it slay me," vowed the Victorian scientist Thomas Huxley.

Also, the tales allege, discoveries tend to come suddenly, dramatically: for instance, the ancient scholar Archimedes stepped in his tub, saw the water rise and ran down the street, naked and wet, proclaiming he'd discovered the principle of buoyancy.

Furthermore, the allegation continues, the history of science is a long battle of good guys versus bad guys, of truth-seekers versus ignoramuses. The church sentenced the astronomer Galileo Galilei to house arrest; Bible-slapping bigots fought Charles Darwin's theory of evolution.

But since the 1960s, historians have shown that such tales are as relevant to the bulk of scientific history as the tale of Washington and the cherry tree is relevant to the American Revolution.

Scientists are not unbiased; rather, they're influenced by social, political and economic forces, often in subtle ways. Also, discoveries aren't the sudden consequence of a moment's ingenuity or luck but, rather, the product of long toil by countless investigators — the "giants" upon whose shoulders the "geniuses" (like Newton) stood.

And far from being a melodrama of irrational bad guys versus rational good guys, the history of science has starred some discoverers who advocated correct ideas for wrong reasons.

Historians of science have recently:

- Linked the development of the air pump to 17th-century political theories.
- Found ties between the Christian doctrine of the eucharist and the persecution of Galileo.
- Studied how social forces molded the development of mathematical branches as diverse as statistics and non-Euclidean geometry.
- "Deconstructed" or sought hidden meanings in scientific articles, just as literary theorists analyze novels.

So what, you may ask. It's all dead history to you. But it shouldn't be, for such research sheds light on the true workings of science — and suggests that citizens shouldn't be

United States has a long history of racist and sexist "scientific" theories geared to keeping blacks and women "in their place," as the historian-scientist Stephen Jay Gould of Harvard argued in his book "The Mismeasure of Man."

And recently, NASA scientist Joseph Hansen told Congress the Bush administration had altered his scientific testimony about the greenhouse effect to suit its administration's view.

Old-fashioned historians of science fought — and still fight — the idea that science is affected by social forces, said Robert Westman of UC-San Diego. Decades ago, "if you'd asked any of your professors (about political factors in science), you'd have gotten an argument more or less the same — namely, that science, unlike art, music, poetry, etc., is special, a special kind of 'knowing' immune from social and political influences."

Their reason: Science has a special "method" with which one can "crank out" truth, unlike art, poetry or other fields.

And "that kind of view is still dominant in some places, particularly in American academia," Westman lamented. One reason, he suspects, is a Cold War mentality reluctant to acknowledge that radical scholars might have a point when they stress the links between science and socio-economic structures.

Indeed, the study of the social context of science was pioneered by Marxist scholars decades ago. Today they remain a small but feisty force in the history of science field. Their key assumption — the importance of economic factors in steering scientific evolution — has influenced even non-Marxist scholars.

The Marxists' basic goal is to show links between the evolution of scientific ideas and economic change. A clear-cut example is thermodynamics: It became an important science in the 19th century partly because of the rise of industrial capitalism, which relied on steam engines to run its factories and trains.

Also, Gould and others have argued that Darwin's theory of evolution by natural selection was generally well received in Victorian England partly because it seemed to provide a biological counterpart to laissez-faire capitalism, then in its heyday.

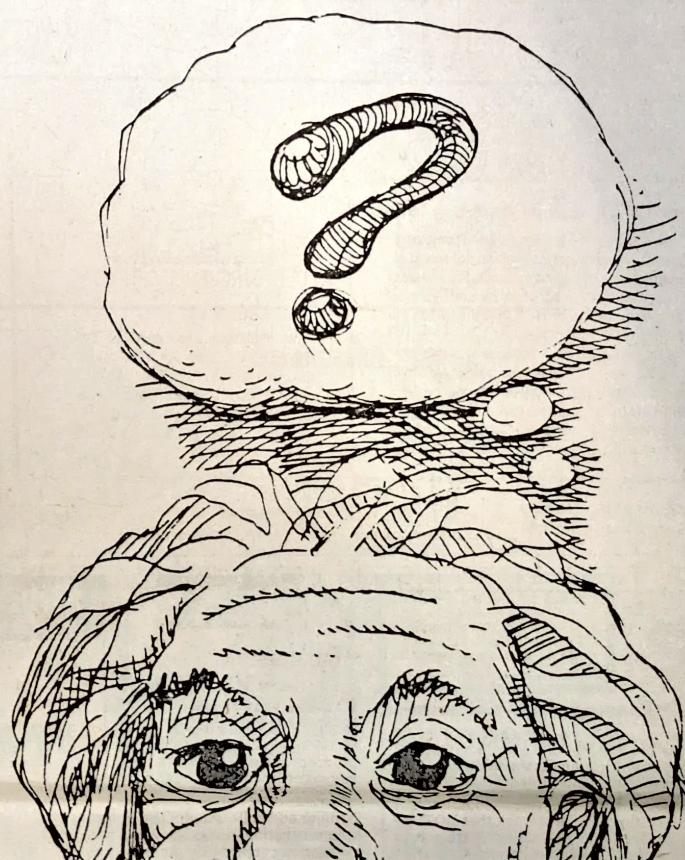
History of science programs prosper at Indiana, UC-Berkeley, Stanford, UC-San Diego and UCLA. They're small, as campus departments go: for example, the Berkeley program has a dozen graduate students and three core teachers.

Yet the field has generated a slew of journals, the best-known being Isis, the official publication of the American History of Science Association. And there are many smaller ones, such as the Journal for the History of Astronomy.

At Stanford, researcher Peter Galison has explored a curious question: how does a scientist decide when an experiment is "over"? Do psychological or institutional pressures spur him to stop the experiment as soon as it

History of Research Gets a Fresh Look

Discoveries Rarely Follow the Method Students Are Taught in the Classroom



geometry.
● "Deconstructed" or sought hidden meanings in scientific articles, just as literary theorists analyze novels.

So what, you may ask. It's all dead history to you. But it shouldn't be, for such research sheds light on the true workings of science — and suggests that citizens shouldn't be intimidated by "experts" but rather should scrutinize scientific claims more carefully. It's a point worth remembering these days, when science has the power either to transform or to end the world.

The discrepancy between scientific mythology and scientific reality is illustrated by Darwin, who in 1859 proposed a theory of biological evolution by natural selection — for instance, that humans and primates were descended from a common ancestor.

The Hollywood version of the evolution debate is "Inherit the Wind," in which two lawyers — one a brilliant agnostic, the other a Bible-slapping demagogue — debate whether the "godless" theory of evolution is fit for classrooms. It's a powerful tale, based on the trial of teacher John Scopes in Dayton, Tenn., in 1925, and it reinforces the popular assumption that Darwin's only foes were religious bigots.

Historians of science know better. In Darwin's day, his most dangerous foes weren't theologians but scientists — well-meaning, distinguished researchers who cited what appeared to be big holes in the Darwinian theory. For example, physicist William Thomson (Lord Kelvin) measured the temperature of rocks within caves and concluded Earth was too young for life forms to have evolved to their current state of complexity. Decades later, new research disproved Thomson's claim.

The history of science became a trendy field in the early 1960s, with the publication of Thomas Kuhn's book "The Structure of Scientific Revolutions." It argued that science didn't evolve in a steady, stately manner; rather, it underwent "revolutions" from one "paradigm" or world view to the next.

Surprisingly, Kuhn's theory has had more impact on fields outside the history of science — philosophy, for example. But it encouraged many historians of science to take a closer look at sociological and "irrational" factors in the evolution of science.

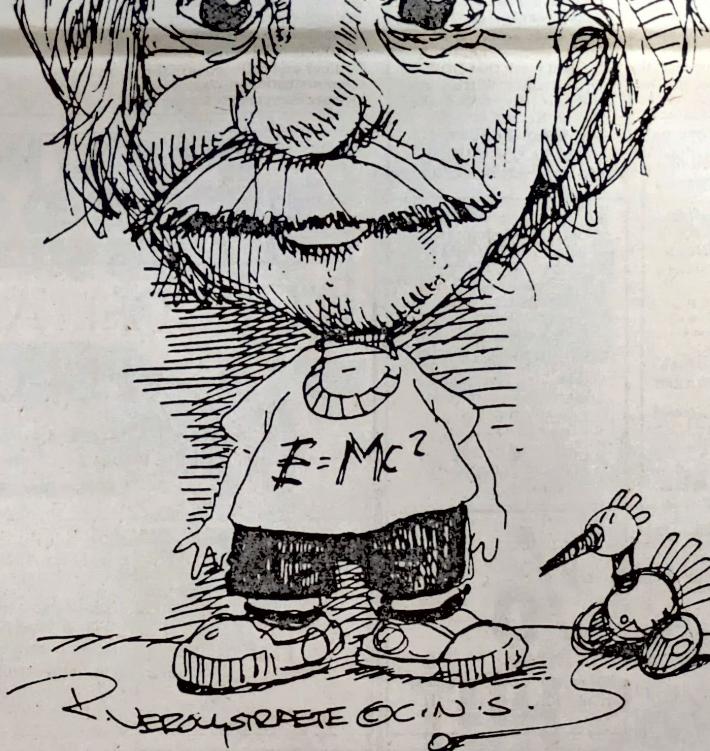
Science's relationship to society began to seem particularly relevant in the 1960s, when researchers sought to explain how science "got into the pickle it was in — the war in Vietnam, polluting, technology applied to military purposes," said historian of science John L. Heilbrone of the University of California.

Today a good historian of science must study the social context of science. "It's essential. You cannot understand scientific ideas without understanding them in their social and cultural context," says Martin J.S. Rudwick of UC-San Diego.

Rudwick knows whereof he speaks: he wrote "The Great Devonian Controversy" (University of Chicago Press), an instant classic in the history of ideas that assesses the social context of a geological dispute in early Victorian England.

The most tragic modern encounter between politics and science occurred in the Soviet Union where, in the 1940s and 1950s, Stalin decimated the genetics community for opposing the quack agricultural theories of his pet scientist, Trofim Lysenko. Also, in Nazi Germany, Einstein's theories of relativity were rejected as "Jewish physics."

But capitalist societies aren't immune. The



Up-and-Coming Classics in the Field

By San Francisco Examiner

Man's first trip to the moon ended a decade of political and technical controversy over the Apollo program: Should humans be sent to the moon, rather than robots? Should America spend billions on a venture aimed at "showing up" the Soviets?

A generation earlier, similar questions split the "moon program" of the 1930s: manned balloon missions to the stratosphere.

That's one intriguing point of David H. DeVorkin's new book, "Race to the Stratosphere" (Springer-Verlag). Lucid, thorough, with a touch of the romantic, it's one of the most remarkable recent studies in the history of science.

Here are some other up-and-coming classics in the study of the history, sociology and philosophy of science:

● Sherwood Cummings, "Mark Twain and Science" (Louisiana State University Press). How the great humorist and inventor of Huck Finn fought an inner battle between Darwin and religion.

● Paul Feyerabend, "Farewell to Reason" (Verso). An acid, entertaining attack on the "myth" of scientific rationalism by a UC-Berkeley professor who is one of the most

infuriating figures in modern philosophy.

● Pietro Redondi, "Galileo Heretic" (Princeton University Press). Did the Vatican nail Galileo mainly for religious, rather than scientific, reasons?

● Arthur Wrobel, editor, "Pseudo-Science and Society in 19th-Century America" (University of Kentucky). A collection of essays on the eccentric things great-great-grandpa believed, ranging from phrenology to hydrotherapy — and why.

● Steven J. Dick, "Plurality of Worlds," and Michael J. Crowe, "The Extraterrestrial Life Debate, 1750-1900" (both published by Cambridge University Press). How did humans get the idea there may be beings on other worlds?

● Sharon Traweek, "Beamtimes and Lifetimes" (Harvard). An "anthropological" study of the nation's small but inordinately influential community of particle physicists.

● Robert V. Bruce, "The Launching of Modern American Science, 1846-1876" (Cornell University Press). How U.S. science rode the government's coattails into power.

● Daniel Kevles, "In the Name of Eugenics" (University of California). A study of the 19th- and 20th-century debate over eugenics, the movement to "breed" better humans.

Astronomy

At Stanford, researcher Peter Galison has explored a curious question: how does a scientist decide when an experiment is "over"? Do psychological or institutional pressures spur him to stop the experiment as soon as it yields the data that he or the institution desires?

Exactly that dilemma was confronted by physicists who, in the 1970s, sought evidence of a physical phenomenon known as neutral currents. Using giant particle accelerators in the United States and Europe, they searched for evidence of the phenomena. Because of the enormous cost of the experiments, they were torn between the purely intellectual desire to resolve the mystery of neutral currents and institutional pressures to save money by ending the experiment — before the "truth" was clear.

"I spent years studying memos that went back and forth between members of the (scientific) groups," recalled Galison, who published his findings in a book, "How Experiments End," published by the University of Chicago Press.

UCSD's program is the newest in California, and also one of the most ambitious. Rather than concentrating on historical research, it unifies three fields that normally have little in common: history, sociology and philosophy.

Some of the most innovative recent research has been by UCSD scholar Bruno Latour. A prolific writer, his work includes an anthropological study of how scientists interact at Salk Institute in La Jolla.

Scholars like Latour are particularly intrigued by science as a system of symbols such as words and equations. Just as structuralist anthropologists perceive linguistic categories in kin structures of "primitive" tribes, some researchers study scientific theories as if they were elaborate word games.

Why, for example, do so many scientific papers contain the following line: "The test tube was removed . . ." That sentence doesn't say who is lifting the test tube; it is simply "being lifted" by some unseen force. And that subject-less style of writing camouflages a crucial fact — that a human being, with human frailties and prejudices, is doing the lifting. The result? The passage tends to reinforce the myth that science is cold, neutral, objective — in other words, that it's the exact opposite of "subjective" fields such as art and literature.

Latour was especially annoyed by the recent controversy over "cold fusion," in which two Utah scientists claimed to have generated nuclear fusion with a tabletop device. Other scientists bitterly criticized the alleged discoverers for not playing by the rules of scientific conduct: for example, they had publicized their work at a press conference rather than first publishing it in a technical journal.

The dispute, which has since died down as most other labs have failed to replicate the Utah results, gave the public a rare glimpse of the scientific community with its pants down. Newspaper editorials remarked on how refreshing it was to see that "scientists are human like everybody else."

Nonsense, Latour says. Of course scientists are human; what else could they be? Everyone expects them to behave like cool, objective angels, yet history proves that when the chips are down, they'll fight as passionately — irrationally, if you will — for their pet ideas as any lawyer.

Research Notebook

From Wire Services

Yuppie Plague Has No Cure

The syndrome usually begins with a serious bout of infectious-flulike disease, and often accelerates at times of high stress. Once called the "yuppie plague" — most who seek medical help are young and usually well-educated women — it can last for months or years, it has no cure, and doctors can only treat its symptoms. Today both sexes and all age and population groups are recognized as susceptible. The dominant symptom: debilitating and unremitting fatigue, usually along with an inability to concentrate, headache, sore throat and swollen lymph glands. Often the patient suffers from severe depression.

The probable diagnosis: chronic fatigue syndrome. Abbreviated CFS, the disorder is among the greater mysteries in medicine, its cause or causes lying somewhere in the interaction among mind, body and health. Scientists are not sure whether a single virus brings on the disorder, or several interacting viruses, or a malfunctioning immune system, or even whether CFS is "all in the mind." They have no idea how many people suffer from it — possibly millions — or whether its prevalence is on the rise. Although the first diagnosis dates back to 1860, some physicians refuse to acknowledge CFS as a medical condition. Some see it as an catchall for a variety of well-understood disorders that aren't being properly diagnosed.

But the federal health establishment increasingly is taking the syndrome and the riddle of its cause seriously. The Centers for Disease Control has begun a study of the affected population, and the National Institute of Allergy and Infectious Diseases is stepping up research on what it calls "this baffling malaise." The good news for those who suffer from the syndrome is that it is neither a fatal nor progressive disease.

Remember To Take Medicine

The inability of many patients to remember to take medication on time is so widely recognized a problem that companies are stepping forward with better mousetraps to solve the problem. One obvious solution is to design drugs that need to be taken only once a day, at any time of day.

Lederle Laboratories has introduced a one-a-day prescription antibiotic it calls Suprax that can be used for middle-ear infections, bronchitis and some strep throat and urinary tract infections. The company's key selling point is that "Americans can take this prescription medication in one (daily) dose and then get on with their busy lives."

Wheaton Medical Technologies has a different approach to medication timing. It is marketing a special pill bottle and cap called Prescript TimeCap that features a digital timerpiece recording the day and time the bottle was last opened. An alarm can be set that beeps for eight seconds if a dosage is missed and then flashes visually until the

The anatomy of the ear: How hearing works

1. The external ear: The receiver

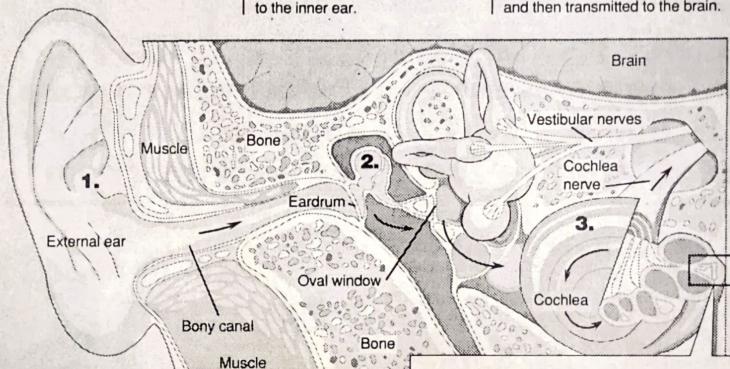
Simply a sound gathering device that helps to funnel sounds into other parts of the ear that actually do the hearing.

2. The middle ear: The amplifier

The hearing process begins when sound-bearing air waves strike the eardrum and cause it to vibrate. The vibrations travel through the middle ear and are relayed through the oval window to the inner ear.

3. The inner ear: The transmitter

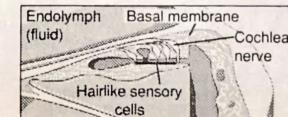
Vibrations set fluid pressure waves moving through the spiral of the cochlea canals. Hairlike sensory cells convert the vibrations into impulses that are picked up by the auditory nerve and then transmitted to the brain.



Principal types of hearing loss

Conduction deafness: Results when something impedes the mechanical transmission of sound waves to the inner ear. Can be caused by ear wax build up, swelling of the ear canal caused by an infection, damaged eardrum, fluid in the middle ear, or hardening of the ear tissues.

Nerve deafness: Occurs because of permanent damage to nerve fibers that transmit impulses to the brain or to the hairlike sensory cells inside the cochlea. Can be caused by a tumor, encephalitis, Meniere's disease, some prescription drugs and chronic exposure to loud music or noise.

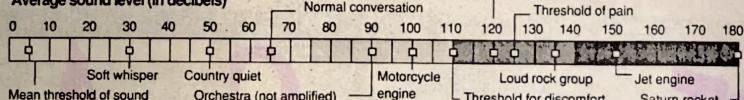


The cochlea

This small bony structure, located within the rigid skull, looks like a snail shell and is guarded by a cushion of fluid. Inside the cochlea are about 20,000 hairlike sensory cells that are arranged along the basal membrane that coils around itself 2 1/2 times.

Comparing sound levels

Average sound level (in decibels)



Chicago Tribune Graphic by Rick Tuma and Terry Volpp; Source: Atlas of Anatomy

DOE May Lose Nuclear Studies

Congress is considering giving to another agency the Department of Energy's authority to conduct health studies at the nation's troubled nuclear weapons plants. Sen. Tim Wirth, D-Colo., and Rep. Lane Evans, D-Ill., told the House Armed Services Committee's nuclear facilities panel last week that DOE

Pill Will Sometimes Nil

Even patients with serious disorders may not be taking their medication as the doctor ordered, and in some cases they may be endangering themselves as a result of their lackadaisical approach. That's the implication of a study of 24 epilepsy patients by Joyce Kramer and colleagues of the Veterans

Alzheimer's Study: Early Harm

Researchers have found that Alzheimer's disease can cause major damage to brain tissue in individuals who have little or no sign of the disorder, a discovery that may change the way doctors make their diagnosis. Studies at Washington University School of Medicine in St. Louis have found that the brains of eight elderly people displayed the tangled nerve fibers, degenerated cells and specks of brain debris typical of Alzheimer's disease. The brains were studied under autopsy. The individuals, who had participated in the study while alive, had shown only mild symptoms. In some cases, doctors disagreed whether any major mental deterioration had taken place, and standard testing techniques did not detect the onset of disease.

Dr. John C. Morris, an assistant professor of neurology who did key work on the study, said the finding could lead to earlier diagnosis of Alzheimer's disease.

TB Linked to AIDS

Tuberculosis is staging a comeback in the United States, in part tied to AIDS, homelessness and intravenous drug use, according to a physician at New York University Medical Center. "Tuberculosis was on its way to being eradicated," said Dr. Joseph Lowy. "From 1953 to 1984, the number of reported cases decreased by 5 percent per year. Then the trend reversed: the number of reported cases in 1985 was the same as for the previous year. In 1986, there was a 2.6 percent increase, and each year since has seen a rise."

An article in an upcoming issue of the center's Health Letter explains that tuberculosis is a chronic or acute bacterial infection caused by Mycobacterium tuberculosis. It is spread from person to person through airborne infectious particles coughed up by someone with active tuberculosis.

A very small percentage of those exposed develop the disease; close physical contact is required. This is why people who work with clinically ill tuberculosis patients are at risk. Another risk factor is a weakened immune system, which is why tuberculosis is seen among people with AIDS (acquired immunodeficiency syndrome).

Quake Secrets in Cedar Slices

Slices from old cedar trees line shelves and tables in David Yamaguchi's laboratory, awaiting analysis that could help predict the next great earthquake in the Pacific Northwest. Yamaguchi, a research associate with the University of Colorado's Mountain Research Station, inspects rings in these cedar slices. Some are more than 300 years old with the oldest 850 years old. He is looking for a "code going back in time" that could provide scientists with a log book charting the turbulent geologic history of western Washington and Oregon. By noting the frequency of earthquakes — as revealed in tree rings — Yamaguchi says his work and that of others may help scientists forecast quakes.

Along estuaries on the Washington and northern Oregon coasts, Yamaguchi and other scientists have found

bottle was just a small black capsule that beeps for eight seconds if a dosage is missed and then flashes visually until the bottle is opened. The time cap sells for \$19.95. Both that product and Suprax should be widely available in pharmacies soon.

Forget Middle-Age Body Surfing

Body surfing is one of the attractions of a trip to the beach, but middle-aged men without a surfboard should leave the wave-catching to kids, a University of Maryland School of Medicine study suggests. Researchers at the school reported 14 cases of severe spinal cord injuries sustained by middle-aged men during the summers of 1987 and 1988 in the resort town of Ocean City, Md. Several were professionals who had to give up their careers.

The circular motion of waves has a tendency to rudely buffet those who get pulled under first in one and then in another direction, often jerking the neck forward or backward. A number of older men suffer from degenerative joint disease, a common bone disorder that causes the spinal canal to grow more narrow with age and thus more prone to injury.

told the House Armed Services Committee's nuclear facilities panel last week that DOE can't be trusted to do the studies. Wirth and Evans have introduced bills to transfer to the Department of Health and Human Services authority to conduct studies of the effects of radiation on the health of workers at the plants and residents of surrounding communities.

Critics long have argued that the same agency responsible for weapons production shouldn't also be responsible for compiling, analyzing and reporting on health effects resulting from its operations. "We must eliminate the conflict inherent in DOE's dual role of producer of nuclear weapons and guardian of the public health," Evans said.

"People are not going to believe DOE," Wirth said. "What would you think if a facility in your backyard was suddenly raided by 70 FBI agents? You would think something is amiss, too."

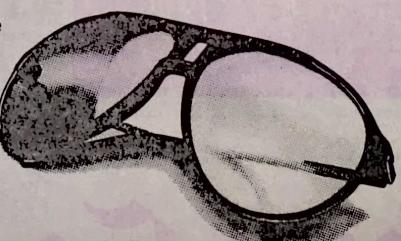
One of the most troubled facilities is the Rocky Flats plant near Denver, which was raided in June by FBI agents and other federal investigators and is the subject of a federal grand jury investigation.

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of a study of 34 epileptic patients by Joyce Kramer and colleagues of the Veterans Administration in West Haven, Conn. The researchers reported their results recently in the Journal of the American Medical Association. Prescription compliance among the patients was tested over several weeks through the use of innovative pill bottles whose plastic caps concealed tiny microprocessors. Each time the patient opened the bottle for a pill, the silicon chips chalked up a dose and kept a running tally.

northern Oregon coast, Yamaguchi and scientists have discovered areas where forests once flourished. But all that remains of them are cedar snags, surrounded by grasses. "These forests were above the high-tide line and they're dead now," Yamaguchi says. "The intrusion of salt water killed them, because cedars can't stand a lot of salt. If all the trees died at the same time, it was probably a big earthquake. If you have a calendar date for that time, you may be able to calculate recurring events," he says.

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Doctors Impressed With Transplant Drug

By MARCIA DUNN
The Associated Press

PITTSBURGH — A Japanese drug developed to fight cancerous tumors is startlingly effective in halting rejection of transplanted kidneys, say doctors in Japan who are the first to test the compound on organ recipients.

American researchers are just as impressed with 15-deoxyspergualin, also known as DSG, and expect to try it on transplant patients in a year or two.

"It's clearly very effective. Yet I think it's teaching us that there are ways to control the immune system we heretofore had not even thought possible," said Dr. Randall Morris, director of the laboratory for transplantation immunology at Stanford University.

Among the possibilities suggested by DSG research but yet to be proven outside the laboratory are lower doses of cyclosporine, a potent anti-rejection drug fraught with side effects; routine matching of organs regardless of blood type; and longer survival of animals getting organs from other species, a step toward the day when animal organs might be transplanted into humans.

"At the very least, if it allows us to lower the dose of cyclosporine, it might be useful," said Dr. Robert Corry, chairman of surgery at the University of Iowa and president of the United Network for Organ Sharing.

Transplant pioneer Dr. Thomas E. Starzl of the University of Pittsburgh is encouraged by the Japanese findings even though he halted animal tests several years ago because of the drug's toxicity and its intravenous use.

"In the big picture, over a long period of time, you can't give drugs intravenously so that's a

limitation," but it could be useful "as a kind of bail-out on a short-term basis to control rejection," Starzl said.

"To get 100 percent of graft survival, we must have several kinds of potent immune-suppressive drugs," said Dr. Hiroshi Amemiya, head of surgical research at the National Cardiovascular Center in Osaka, Japan. "This is one of that kind of potent drugs."

There were 9,123 kidney transplants in the United States last year, according to the United Network for Organ Sharing. Virtually all transplant recipients experience some organ rejection, but most is temporary, minor and can be controlled with drugs. Ninety-six percent of transplanted kidneys are functioning a year after surgery if the organs come from living relatives, said Kelle Straw of UNOS. The success rate is 91 percent when the kidneys come from dead strangers — as is the case in the vast majority of transplants.

DSG is a chemical byproduct of spergualin, a substance isolated by Japanese scientists in 1981 from bacteria found in soil. Two Japanese companies launched laboratory tests in 1985, and Amemiya and others began conducting the world's first clinical trials involving transplant patients last fall.

Bristol-Myers Co. is under agreement with the Japanese firms to develop the synthetic drug for use in the United States.

U.S. researchers have studied DSG as an anti-rejection agent in animals, but it has been tested on about 90 cancer patients over the past three years. The National Cancer Institute is conducting clinical trials at the University of Texas at San

Antonio and Memorial Sloan-Kettering Cancer Center in New York.

The human tests were begun after experiments showed DSG inhibited growth of tumors in mice, said Dr. Michael Christian, senior investigator in the NCI's developmental chemotherapy section. "It's hard to say whether the drug is going to be useful as an anti-cancer agent. It's too early to tell."

Amemiya reported at the American Society of Transplant Surgeons' annual meeting in Chicago last month that 30 kidney recipients at six centers in Japan were treated temporarily with DSG. The 18 males and 12 females, ranging in age from 13 to 43, received their new kidneys as far back as 1975.

The compound was administered after they suffered organ rejection. Standard anti-rejection drugs didn't work, including OKT3, which wipes out white blood cells called T-cells that attack transplanted organs, Amemiya said.

The Food and Drug Administration approved OKT3 in 1987 for general use in kidney transplantation. It still is experimental in other types of transplants.

Twenty-seven of the 34 episodes of organ rejection experienced by the Japanese patients were reversed within 10 days, according to Amemiya. Only one transplanted kidney was lost, with the patient forced back to dialysis.

DSG worked best with the milder forms of rejection occurring within six months of transplantation, Amemiya said. "We don't have any good therapy for chronic rejection," which occurs one to five years later and is characterized by a narrowing of the transplanted organ's arteries.

Side effects were temporary and included nausea and numbness around the mouth. Each of the 30 Japanese patients continued to receive cyclosporine and other immune-suppressive medications during the trial, Amemiya said.

Cyclosporine, derived from a soil fungus, helps prevent rejection by freezing certain T-cells so they don't divide and increase in number. But the daily oral doses can lead to kidney failure and high blood pressure.

DSG allows certain T-cells to divide normally but for some reason the cells do not attack transplanted tissue, Morris said.

Transplanted organs also can be attacked by antibodies the recipient's body produces in response to foreign tissue. Transplanting organs across blood types or from one species to another generates even more of these antibodies.

Navy's Building a Bigger Blimp

When most people think of blimps, they imagine gently floating balloons advertising everything from tires to soft drinks. The Pentagon has another picture: protector of warships, nearly invisible to radar, providing early warning of approaching enemy aircraft. Blimps played this role in World War II but the Navy abandoned its airships as outdated in the early 1960s. Now, the Pentagon has ordered construction of a 425-foot-long blimp that will be the largest non-rigid airship ever built, more than twice as long as a conventional blimp.

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